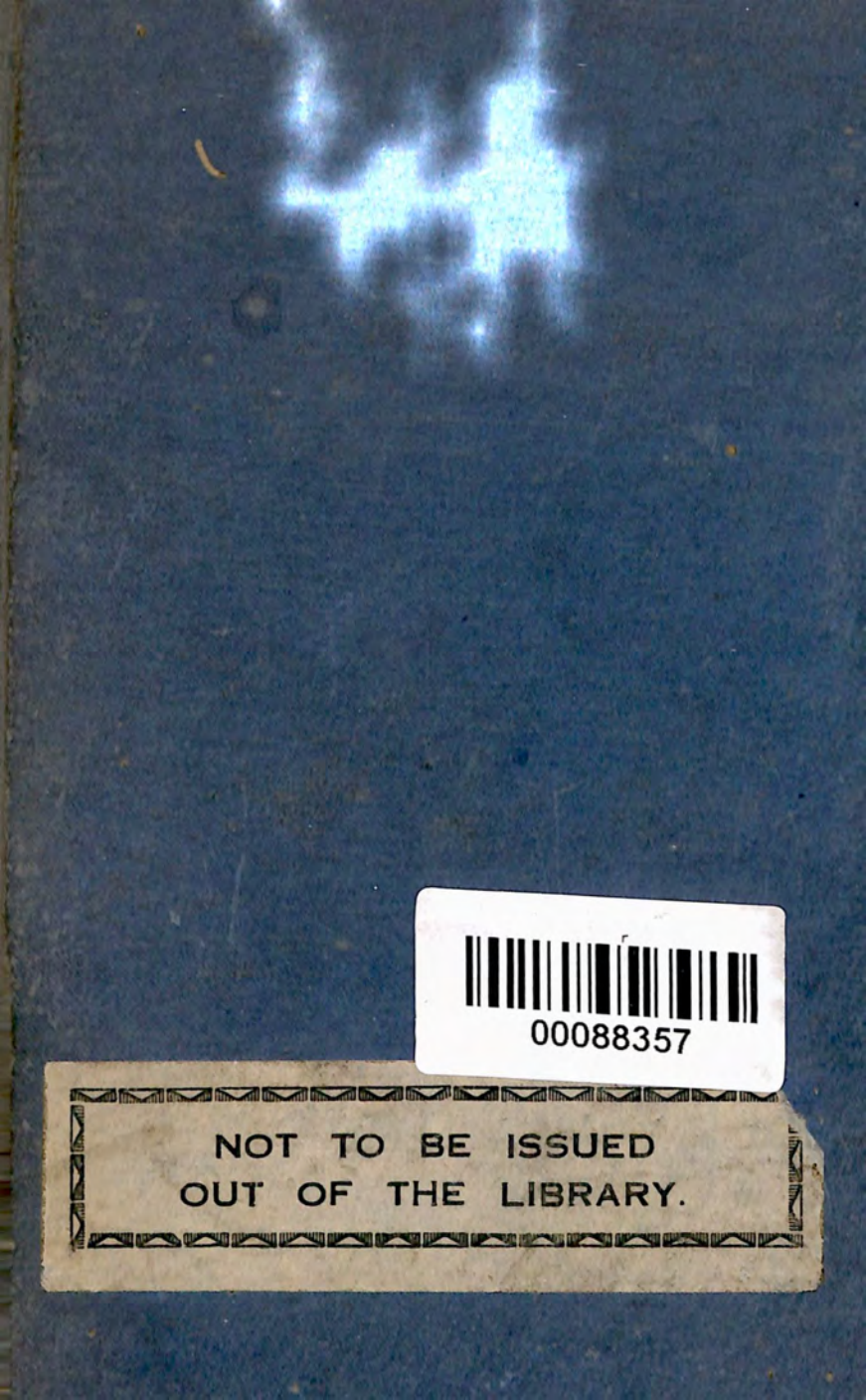
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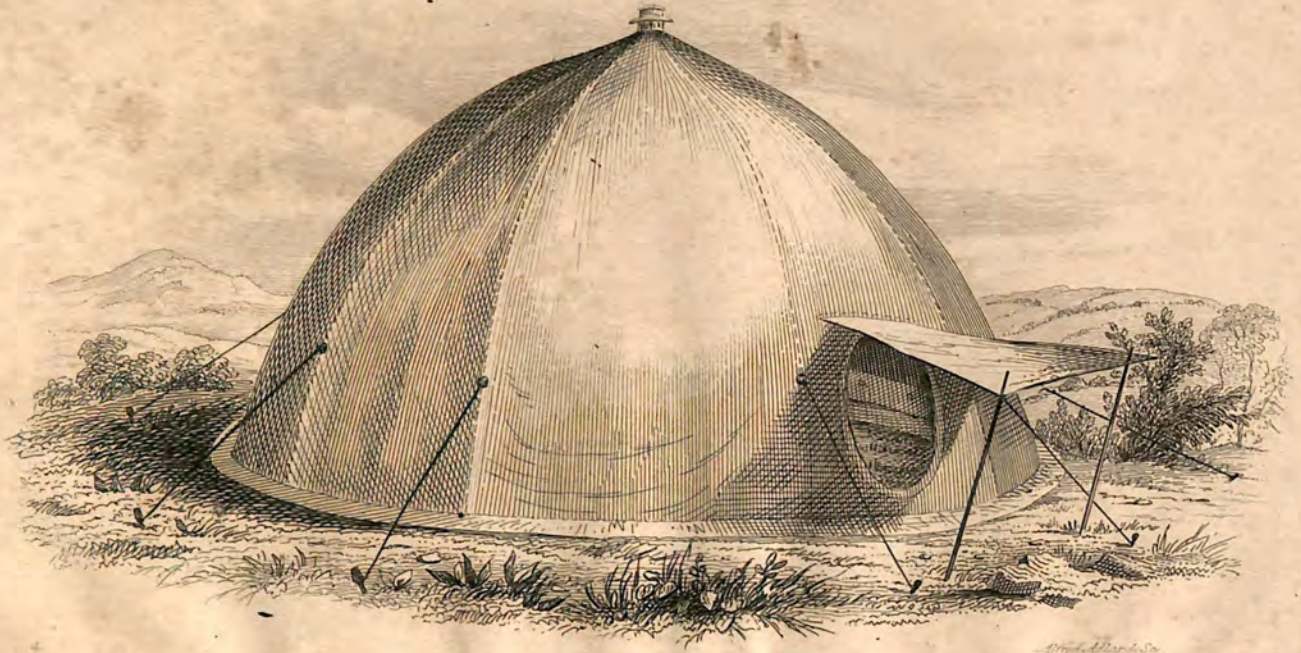

My own Field Tent.

TENTS

AND

TENT-LIFE,

FROM THE

Earliest Ages to the Present Time.

TO WHICH IS ADDED

THE PRACTICE OF ENCAMPING AN ARMY IN ANCIENT AND MODERN TIMES.

By GODFREY RHODES,

CAPTAIN OF HER MAJESTY'S 94TH REGIMENT.

ILLUSTRATED BY SEVERAL ENGRAVINGS.

8835
a

"He saw a spacious plain, whereon
Were tents of various hue; by some
Were cattle feeding." MILTON.

Y A. f. 2.

LONDON:
SMITH, ELDER, AND CO., CORNHILL.
1858.

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AND CHARING CROSS.

TO

HIS ROYAL HIGHNESS

THE DUKE OF CAMBRIDGE, K.G.,

&c. &c.,

GENERAL COMMANDING-IN-CHIEF OF THE BRITISH ARMY

This Volume

IS, BY HIS ROYAL HIGHNESS' SPECIAL PERMISSION,

MOST RESPECTFULLY INSCRIBED.

PREFACE.

It is a trite saying "that we never know the worth of a thing till we lose it;" and never was its truth so forcibly felt as on the memorable 14th day of November, 1854, on which the southern part of the Crimea was visited by a terrible hurricane of wind, coming in sudden gusts, accompanied by a drenching rain, followed in the afternoon by hail and snow. The British and Allied tents (the Turkish round tents excepted) were nearly all blown down, and many of them destroyed. I may here add, that although those coasts are at times visited by violent storms, none so furious had occurred for the previous thirty or forty years.

Having been one of the many sufferers by this disaster, besides having lived under canvas during the winter and spring campaigns of 1853 and 1854 on the Danube, when honorary aide-de-camp to His Excellency the Spanish General Prim, Comte de Reuss (chief of a military and scientific commission, accredited to His Majesty the Sultan Abdul-Medjid by Her Majesty Isabella II., Queen of Spain), I may fairly say

that I have had some practical experience of a nomadic life. This has enabled me to perceive the inefficiency of all modern tents, and further, has induced me to study at my leisure their construction, utility, portability, &c.

The tent in which I lived in the campaign on the Danube was the same as that I had in the Crimea, one of Edgington's improved military tents, and was of a dark green colour. This habitation, although waterproof and very comfortable, shared the fate of others on the 14th of November, being blown down.

Convinced that by adhering to the present plan of constructing tents (viz., by having interior vertical poles, and innumerable outside supports in the shape of ropes, for the purpose of keeping the tent upright, besides acting as props or stays to resist the wind), I could not increase their stability or rigidity without very materially adding to their weight, and thereby decreasing their usefulness in the shape of portability, I at once banished all such methods of construction from my mind.

After having carefully studied the nature and firm properties of semicircular and other curvilinear arches (as applied to tunnels), I hope I have at last been successful in applying the same principle to tents, making their plan of erection both simple and rigid, portable and ele-

gant. I sincerely trust that my present invention may prove both beneficial and useful to all nations who may require light, portable, and firm habitations during their nomadic wanderings; and I hope that it will supply a want which has often been felt both by the British and Continental armies.

My reader will hereafter perceive that I have not omitted providing shelter for the sick, or soldiers who may be wounded on the field of battle; neither have I forgotten those in camp, nor those employed on outpost duties. The latter especially, occupying very exposed situations as advanced guardians to the camp, frequently undergo severe hardships for want of protection from incessant rains and piercing cold winds. These would perhaps find my "Guard-tent" (or "Tente d'Abri"), although very light, irksome to carry; but when small portions could be consigned to each soldier, the pleasurable reunion of all its parts, when converted into a snug dry tent, would far overbalance the discomforts of having to carry this slight extra burden.

It is a well-known fact, that when the soldier suffers from the bad effects of indifferent clothing or such coverings as tents, extra sickness, and consequently extra expense to Government, are the results.

Some might perhaps be led to suppose that

soldiers can fight battles and bivouac for any length of time without tents; but not so: for the absolute necessity of covering troops when employed in the field has, with rare exceptions, at all times, and with all nations, been a subject of paramount importance. Nevertheless, history records a contrary example of the endeavours of a great nation entirely to dispense with tents for their soldiers, and the lamentable but natural results.

Towards the close of the second year of the French war of liberty, the Central Convention, or Assembly, had agents attached to the several divisions of the army then in the field: with a view of diminishing the heavy expense, as also to facilitate the mobility of their troops, as they conceived, these commissaries refused to continue the supply of tents and their necessary transport, thus obliging the troops to bivouac. This murderous and pernicious system may probably be classed among the worst of the numerous errors committed by the agents of the Council of Terror. It will be difficult to calculate the number of the brave defenders of the country who from bivouacs were sent to the hospital, and thence to the tomb,—not less difficult to know the number of those who, having escaped death, retained the too often insupportable rheumatic sufferings, causing some to be

lame and others to lead a languishing life for the rest of their days.

It is to be regretted, that, during a campaign, soldiers are often both badly fed and badly clothed. How often are they not greatly fatigued by unremitting exertions and constant marches! and to oblige them to seek repose under the canopy of heaven for their only shelter, with the damp ground as their bed, or to bury themselves in the moist earth, as is the case when subterranean huts are constructed for winter encampments, is, to say the least, a most pernicious and destructive proceeding. This, alas! shows that they serve those who consider metallic produce of infinitely superior value to that most noble of all earthly beings—man.

These cruel proceedings were enacted and enforced by short-sighted and egotistical men, who considered that the cost of providing tents and transport for the use of the brave defenders of their country far exceeded in value the expected results.

May this short epitome of past historical events and their sad result, not be obliterated from history, but remain as a practical lesson for future generations!

This signal failure of an endeavour to discontinue their use consequently proves "tents" to be a necessary appendage to an army; it hence

behoves all governments to adopt the best that can be obtained.

Previous to engaging in the task, I was unacquainted with the history or construction of any tents, save and except such as I had seen; but since the month of January last I have devoted much time to examining the works of various ancient and modern writers who have described such habitations, belonging to the innumerable tribes and nations who have inhabited the earth, from the earliest recorded period to the present time. And although I have not the vanity to suppose that this small volume embodies all the information that exists on the subject, I hope that the result of my researches will, by exhibiting the inefficiency of other modes of construction, prove the superiority of the tent I now bring before the public.

A careful examination into the method of constructing tents, throughout all ages, has led me to the conclusion, that, however advanced may be the knowledge of the present day in various appliances of science, we are marvellously deficient in the art of constructing a tent that shall in all climes and seasons afford a dry, secure, and well *ventilated* shelter to the soldier in the field.

The present state of affairs in India justifies the belief that a large European force will

necessarily be required for many years to come. The climate and peculiar circumstances of the country are such as occasionally to demand the removal of troops to cooler and more healthy localities, where encampments in the open plains or mountain sides will be preferable to dwelling in the prescribed limits of towns; hence will imperatively be needed a supply of protection to the soldier, that no such sad details of disaster may come to us from Hindostan as distressed us in the Crimea.

With a view of rendering this work more useful to my brother soldiers, and also adding to the general interest, I have devoted some pages to the modes of encamping an army in the field in ancient and modern times, from the Greek historians, as also the lucid arrangement of Cæsar, from his own Commentaries, the regulations of the British army in the great Continental wars, and also those of the present time. To this I have added some practical remarks by the late Dr. Robert Jackson, Inspector-General of Army Hospitals in 1845, with reference to "selecting Encamping Grounds for armies in the field," considered in a sanitary point of view; also a summary of a most valuable Report made by order of the Emperor Napoleon III., by the Baron Larrey, on the sanitary condition of the camp at Châlons in August, 1857.

Before concluding my prefatory remarks I should be wanting in gratitude were I to omit this opportunity of thanking Mr. Duncan Campbell Ferguson, architect and civil engineer, of Portobello Bridge, Dublin, for the valuable and cheerful assistance he has rendered me in superintending the construction of large Model Tents furnished to the English, French, Austrian, Prussian, Russian, Swedish, Belgic, and Hanoverian Governments, and for the able and artistic manner in which he has prepared the illustrations; as also Mr. Jeremiah How for his assistance in preparing the MS. and superintending the work through the press.

Junior United Service Club,
August, 1858.

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TENTS AND TENT-LIFE.

INTRODUCTION.

First mention of Tents — Jabal, in Genesis — The Sacred Tent — Arabian Tents — Meaning of the Word — Nineveh — St. Paul a Tentmaker — The Rechabites, their supposed Descendants in a Tribe now in Arabia.

INTRODUCTION.

THE earliest mention we have of tents is in Genesis iv. 20, where we are told that "Jabal was the father of such as dwell in tents and of such as have cattle;" meaning that he was the *inventor of tents*, and of pitching those moveable habitations in the fields. Jabal may be said to be the first of those wandering shepherds who, to this day, occupy so conspicuous a place among the inhabitants of Asia, living under tents, and removing from place to place with their flocks and herds according to the season or the demand for pasturage.

After the Flood, Noah was "within his *tent*," and, prophesying the future destiny of his family, he said, "Japheth shall dwell in the *tents* of Shem" (Genesis ix.). In the 13th chapter also, "Lot, which went with Abram, had flocks and herds and *tents*." We find also in Genesis xxv. the two sons of Isaac are thus described:—"Esau was a cunning hunter, a man of the field; and Jacob was a plain man

dwelling in *tents.*" The epithet is applicable to the simplicity of Bedouin life to this day. On the exodus of the Israelites from Egypt, throughout their peregrinations until they obtained the promised land they adopted the same kind of habitation. Tents must necessarily have been generally used in ancient times among the people; their way of life being mostly pastoral, locomotion was required for pasturage, and dwellings adapted to such a life became indispensable. Accordingly we see the first mention that is made of tents is connected with the keeping of cattle, and to this day they remain the exclusive residence of only pastoral people.

It is impossible to ascertain, with precision, the construction and appearance of the patriarchal tents, but we shall not be far from the truth if we consider the present Arab tent the nearest existing approximation to the ancient model.

The common Arab tent is generally of an oblong figure, varying in size according to the wants or rank of the owner, and in its general shape not unaptly compared by Sallust, and after him by Dr. Shaw, to the hull of a ship turned upside down. It may not improperly be suggested that Noah covered the ark with the skins of animals sewed together, so placed that they might easily be drawn over each other

in storms and cold weather, and opened when his family or the animals wanted either light or fresh air. It is certain that many of the antediluvian patriarchs dwelt in tents, and these most likely were covered with skins, as soldiers' tents were afterwards, and as those of many wild tribes are to this day. Noah might well use such a covering for his house upon the waters to secure himself, his family, and his stock from damage by storms. This opinion is supported by the statement, "Noah removed the covering from the ark" (Gen. viii. 13), whilst the vessel was upon the waters. The Hebrew word which is rendered *covering* is the same used to signify the covering of the tabernacle, which was made of skins.

In that interesting picture of the patriarchal age which appears in the sacred volume, we are told that Abraham "sat in the tent-door in the heat of the day." Among the Bedouin tribes it is the duty of the chief or sheikh to entertain strangers; and as the custom requires them to stop at the first tent they reach, the sheikh's tent is usually pitched in the advance towards the highway. This custom will account for Abraham being the first to perceive the three strangers as he sat in the shade of his tent-door to enjoy any air that might be stirring, while the heat rendered the interior of the tent

too close and sultry to be conveniently occupied; in the heat of the day the external shade of the tent is much cooler and more pleasant than the interior.

The instructions delivered by the great law-giver to the Israelites for setting up of the tabernacle, or sacred tent as it may properly be termed, thus directs:—"And thou shalt make a covering for the tent of rams' skins dyed red, and a covering above of badgers' skins." The Hebrew *tahash* has been rendered badger, which is an animal that does not inhabit Arabia; but it is meant to describe an animal whose skin will resist wet; and the skin of the *tahash* was used for making shoes (Ezekiel, xvi. 10): it is there rendered badgers' skins. We have good testimony that there is in the Red Sea, a fish whose skin is like the wild goat or chamois. Niebuhr says that a fish which the English call porpoise, or sea-hog, is called by the Arabian merchants *dahash*. He also says the skin is used for bucklers, and is musket-proof. Other authors say the skins are used for covering huts, &c.

The word *tent* comes from the Latin *tentus*, stretched (*tentorium* being a tent or pavilion), tents being usually made of skins or canvas stretched out and sustained by poles with cords and pegs; and the same may be understood of a tabernacle, a pavilion, or portable lodge, under

which to shelter in the open air from the injuries of the weather.

Succoth, which signifies *tents*, is mentioned, Exod. xii. 37, as the first encampment or resting-place of the Israelites after they left Egypt, and is probably so named in consequence of its being a spot where caravans were accustomed to encamp, or obtained its name from their encampment on the occasion of the exodus.

Tents were also appropriated to the different sexes: Sarah had her tent; Laban went into Jacob's tent; Leah's tent, Rachel's tent, and the maid-servants' tent are also particularised. The custom of setting apart tents for the use of women is still continued, and the common Arabs have a separate apartment in their tents for their wives, made by letting down a curtain or carpet from one of the supports.

Mr. CHARLES TAYLOR says: "Besides *Succoth*, two other terms are used in the sacred Scriptures to denote tents, namely, *Sheken*, which may be taken for an inferior kind of tent or tabernacle, similar to the huts of the natives of New Holland, which are formed of a few branches crossing each other, covered with brushwood and clay, six feet in depth and four or five in breadth; the other, called *Abel*, may denote a tent whose accommodation may be

varied so as to suit a large family; or those which might be enriched or ornamented for great men, as generals or kings."

In our translation of the Old Testament, the words *succoth* and *masac* are thus variously rendered:—booth, college, covert, covering, hanging, pavilion, tabernacle, tent. As we shall afterwards show, tents are still used for religious ceremonies in the East. During the period of our Biblical history, it would appear that tents were in common use even within the walls of a city: the sculptured remains of the buried city at Nineveh (700 years B.C.) exhibit examples. In the tent represented in the plate, also, are shown jars for cooling water, suspended on the poles, as is now the practice in the East. These sculptures of the ancient Assyrians represent not only men, but articles of furniture, as couches, chairs, and tables, inside tents.

We find that the Apostle Paul made it a point of honour to preach the gospel of Christ without payment, working with his hands for a livelihood. His associate Luke (Acts xviii.) says, "Paul came to Corinth, where he found a Jew, named Aquila, and because he was of the same craft, he abode with them and wrought; for by their occupation they were tent-makers." Mr. Taylor infers that these tents were for the use of the Roman soldiery. All the trade

and manufactures of Palestine at the period appear to have been carried on by the Jews; and as Palestine was for so many centuries the seat of war, and for all time the contending parties were not the native inhabitants, tents must have been always required for the armies to protect the soldier from the heavy dews that fall during the night. That these tents were impervious to wet we have good testimony, and, according to the general belief, the coverings were of very closely woven or felted hair-cloth.

In Layard's 'Nineveh and Babylon' we find, "At Mosul was discovered a chamber, in which on the sculptures was described the taking by the Assyrians of a fortified city called Lachish" (Lakhisha). (Josh. x. 23; 2 Kings, xviii. 14.) The king, Sennacherib, is represented sitting on a throne, placed at the entrance of the city. Behind the king was the royal tent or pavilion, supported by ropes. An inscription about it confirms this, as it says, "This is the tent of Sennacherib, king of Assyria." Date about 700 years B.C.

Jerome, in his Epistle to Rusticus, says, "The chief inventors and improvers of monachism were the sons of the prophets of the Old Testament, who built huts near the river Jordan, and quitting throngs and cities, lived upon barley cakes and wild herbs. Of this number

were the sons of Rechab, who lived in tents: they are commended by the prophet Jeremiah, chap. xxxv." There is an independent tribe of Jews in Arabia, the Beni Kheiber, who are nomades, living in tents, and who drink no wine. They do not associate with other Jews; they observe the law of Moses by tradition, but have not the written law. (See Benjamin of Tudela, Niebuhr, and Joseph Wolfe's Travels.)

TENTS OF HIGH ANTIQUITY.

GREEK — MACEDONIAN — ROMAN — SCYTHIAN.

TENTS OF HIGH ANTIQUITY.

GREEK AND ROMAN.—The tent of Achilles was a wooden hut, covered with reeds, as Homer describes the aged Priam going in his chariot to Pelides' (Achilles') tent, which is thus rendered by Pope:—

> "Unseen, through all the hostile camp they went,
> And now approach'd Pelides' lofty tent.
> Of fir the roof was rais'd, and cover'd o'er
> With reeds collected from the marshy shore;
> And fenc'd with palisades—a hall of state
> (The work of soldiers), where the hero sate.
> Large was the door, whose well-compacted strength
> A solid pine-tree barr'd, of wondrous length.
> Scarce three strong Greeks could lift its mighty weight;
> But great Achilles singly closed the gate."

The men's tents were covered by skins, but nothing else is said.

The tents of the Macedonians were small, as being intended to supply only a necessary covering against inclement weather. They were made of skins, and therefore, when bundled up, were sometimes made use of in passing rivers. Two soldiers lay in a tent.

Thus the Macedonians used little or nothing else but "Guard Tents," as I call my new invention, or "Tentes d'Abri."

As for the king, his tent was pitched in the centre of the camp, where he lay by himself. It seems to have consisted of but two apartments: one where the king slept, and the other where he received company. Before the entrance his guards did duty.

The pavilion of Alexander the Great was of enormous dimensions, and is represented as being capable of containing 100 beds. The roof, one mass of gilded designs, was supported by eight pillars, covered with gold. In the centre was placed his throne, which was a mass of gold: from it he delivered his judgments. This pavilion is said to have been the most gorgeous ever seen. His body-guard, or armed court attendants, consisted of 500 persons, clothed in magnificent attire, covered with gold embroidery. Their duty was to guard the interior entrances, so that no unauthorized individual could approach the sovereign without complying with the usual court regulations.—(From the fifteen books of the Déipnosophistes d'Athénée.)

On the Column of Antoninus (A.D. 174) is represented a tent, which to all appearance is wholly made of canvas. In the work which delineates the sculptured ornaments (Colomna Antoniniana), at the bottom of this plate is this description: "*Tentoria, seu tabernacula et castra.*" In another engraving are some tents, rather

Columna Antoniniana.

hut-shaped, with sloping roofs, the sides made of canvas, and the top covered either with skins or canvas.

In the volumes of engravings from the sculptures on the columns of Antoninus and Trajan, which were erected to record the triumphs of the two emperors, are many representations of the tents and huts which the Romans provided for landing on a hostile shore. The huts of the Dacians, as well as other barbarians, are also depicted. The Dacians appear from these sculptures to have been a peaceful people, and the atrocities committed on them by the Romans, are as the artists were Romans, doubtless faithfully rendered.

On Roman monuments the tents represented appear to be huts having curtains at the entrance. (Ciacono, Hist. a Triano Cæsare, Roma, 1616.)

Adam (Roman Antiquities) says: "The tents (tentoria) were covered with leather or skins, extended with ropes. In each tent were usually ten soldiers, with their decanus or petty officer, who commanded them, called 'contubernium.'"

The breadth of the Roman tent (for summer) was ten Roman feet. Sometimes they were covered with leather, but the largest probably with cloth. (Fosbrooke.) When they were open before and behind, with the valances lifted up,

they had the appearance of a butterfly flying, and therefore were called *papiliones*. Nero had an octagon tent of singular beauty.

In Cæsar's Commentaries, edited by Clarke, illustrated by numerous engravings, it appears that the army of Ariovistus, a king of the Germans, who invaded Gaul and subjected the inhabitants to the most cruel and oppressive treatment, and whom Cæsar marched against, and in a great battle entirely defeated, used huts or tents in shape similar to those represented in Froissart, viz., bell-shaped, with outside long ropes. They had other tents and huts, for men, shaped like our present hospital tents, but with perpendicular ends: they had higher walls, and were constructed something like common sheds, and, I presume, had wooden props inside, as outside ropes are not represented to these long tents.

In the same work various other tents used in Cæsar's wars are shown. One has a dome-shaped top. It is circular, with long curtains falling all round on the ground. There are also three tents of the exact form now used in England, the old pattern "round tents," or, as they are erroneously called, "bell tents," without the improved short wall.

The Romans appear to have hutted their men when in standing camps, or used tents either covered by canvas or leather, or by skins.

TENTS, BOOTHS, OR SHELTERS OF THE ANCIENT SCYTHIAN TRIBE CALLED "ARGRIPPEANS."—The Argrippei were a nation among the Sauromatæ (Sarmatia), and, according to Herodotus (B.C. 445), were of two distinct tribes, viz., the Androphagi or Men-eaters, fierce and cruel; and the Argrippei or Bald-heads, who had flat noses, and were a wise and peaceful people. They lived on the fruit of a tree called ponticus, from which, when ripe, they made a thick black liquor, called *aschy*, which they drank clear or mixed with milk; and of the husk they prepared a kind of cake. No man offered violence to this people, for they were accounted sacred, and had no warlike weapons among them. They determined the differences which arose among their neighbours, and whoever fled to them for refuge was permitted to live unmolested. It was a political maxim in Scythia not to permit any foreigner who retired thither to return to his native country. Herodotus further tells us that these people slept in winter under trees covered with a strong white cloth, and in the summer under those trees without any covering at all. Ritter asks, "Were these Argrippei one of the early sacerdotal colonies from India which had settled in the wilds of Scythia, and whose peaceful and sacred character had secured the regard of the neighbouring barbarians?" According to

the suppositions of Rennell and other modern writers, the Argrippei must have occupied the northern part of the tract now in the possession of the greater or eastern horde of the Kirgees.

I have perhaps dilated over-much in here giving some account of this ancient tribe, but, considering that little is known either of their appellation or customs, I have judged it to be useful and instructive to afford all attainable information regarding a people whose dwellings are described.

The habitations of the Scythian nomades were various, and in some respects curious. Herodotus, in speaking of the customs of these tribes, says, "The Scythian nomades, inhabiting the tract between the Tanais (Don) and the Borysthenes (Dnieper), lived for the most part in waggons, the lesser sort of which had four wheels, and the larger six. These vehicles contained within them houses made of clay, some of which had one and others three little rooms, that were occupied chiefly by women, the men generally riding on horseback. The smaller waggons were drawn by four oxen, the larger by six."

ASIATIC TENTS.

BEDOUIN OR ARAB, THE SAME AT THIS DAY AS IN THE PATRIARCHAL AGE; DESCRIBED BY NIEBUHR, LAYARD, STEPHENS, LAMARTINE, CLARKE, BURCKHARDT — PERSIAN — HINDUSTAN — CALMUC AND MANTCHOW TATARS — THE TUSKI — THE SAMOYEDES — THE OSTYAKS — THE BURAETS — CALMUC TATARS AND NOMADE RACES IN CHINA — TURKISH TENT — MAGNIFICENT TENTS OF THE SULTAN — MODERN, BY THE AUTHOR — TENTS OF MALAY PEOPLE — HABITATIONS OF THE ANDAMANERS.

ASIA.

THIS important division of the globe, whose surface amounts to about seventeen millions and a half of square miles, must be regarded as having been the most favoured. Here the First Man was created; here the Patriarchs lived; here the Law was given; here the greatest and most celebrated monarchies of antiquity were formed; and from hence the first founders of cities and nations in other parts of the world conducted their colonies. In Asia our blessed Redeemer appeared, wrought salvation for mankind, died, and rose again; and from hence the light of the Gospel has been diffused over the world. Laws, arts, sciences, and religions, almost all had their origin in Asia. The soil is fruitful, and abounds with all the luxuries as well as the necessaries of life. The climate over the greater part is favourable to residence in the open air, and the trackless plains that abound in this division of the globe encourage the habits of the patriarchal age to be continued to this day among the many nomade tribes. Although these tribes go under

various denominations, yet the term Bedouin will be one that is generally understood.

ARAB OR BEDOUIN TENTS.—These people dwell entirely in the wilds, visiting towns only when compelled by the requirements of any of the necessaries of life; their tents are of the most primitive character, and although some more wealthy sheikh may occasionally have a habitation of superior kind, yet what we shall describe may be considered the type of all.

The Arab family tent is in length from 25 to 30 feet, by about 10 feet in breadth; the extreme height—that is, the height of those poles which are made higher than the others in order to give a slope to throw off the rain from the roof—varies from 7 to 10 feet; but the height of the side parts seldom exceeds 5 feet. The most usual-sized tent has nine poles, three in the middle and three on each side. The covering of the tent among the Arabs is usually black goat's hair, so completely woven as to be impervious to the heaviest rain; but the side-coverings are often of coarse wool. These tent-coverings are spun and woven at home by the women, unless the tribe has not goats enough to supply its own demand for goat's hair, when the stuff is bought from those better furnished. The front of the tent is usually kept open, except in winter, and the back or side hangings or coverings are so

Alfred Addard Sc.

Ancient Arab Tents.

managed that the air can be admitted in any direction, or excluded, at pleasure. The tents are kept stretched in the usual way, by cords, fastened at one end to the poles and at the other by pins driven into the ground, at the distance of three or four paces from the tent. The interior is divided into two apartments by a curtain hung up against the middle poles of the tent. This partition is usually of white woollen stuff, sometimes interwoven with patterns of flowers. One of these apartments is for the men, and the other for the women. In the former the ground is usually covered with carpets or mats, and the wheat-sacks and camel-bags are heaped up in it around the middle post like a pyramid, at the base of which, or towards the back of the tent, are arranged the camels' pack-saddles, against which the men recline as they sit on the ground. The women's apartment is less neat, being encumbered with all the lumber of the tent, the water and butter skins, the culinary utensils, &c. Some tents of great chiefs are square—perhaps 30 feet square—with a proportionate increase in the number of poles, while others are so small as to require but one pole to support the centre. The principal differences are in the slope of the roof and in the part for entrance. When the tent is oblong, the front is sometimes one of the broad, and at

other times one of the narrow, sides of the tent.

Niebuhr (1762), in speaking of the tribe of Arabs called Beni-said, near Mount Sinai (28° N. lat., 34° E. long.), says, "They lodge in tents made of coarse stuff, either black or striped black and white, which is manufactured by the women of goat's hair. The tent consists of three apartments, of which one is for the men, another for the women, and the third for cattle."

Colonel Layard thus describes the tent of Sheikh Howar, an Arab of the present day: "It was a large tent, supported by six poles down the centre, with the same number at each side, covered with black goat's-hair canvas, divided into strips, and either sewn together with coarse thread or fastened by small wooden pins. The canvas alone was the load of three camels." The usual burden of a camel is about 750 lbs.: thus the weight of the covering was about 2250 lbs.

In Mr. Stephens's Travels (1836) are several vivid pictures of life among the Arabs of Arabia Petræa. He was on his return, his caravan consisting of five camels, four Arabs, Paul, his own servant, and himself. They were in a gorge among the mountains, and did not alight on a place where it was prudent to encamp till two hours after dark. "We pitched our tent in

the open valley; the thunder was rumbling, and ever and anon bursting with terrific crash among the riven mountains, and the red lightning was flashing above the hoary head of Sinai. It was a scene for a poet or a painter; but, under the circumstances, I would have given all its sublimity for a pair of dry pantaloons. Thunder and lightning among the mountains are exceedingly sublime, and excellent things to talk about in a ball-room or by the fire-side; but, my word for it, a man travelling in the desert has other things to think of. Everything is wet and sloppy; the wind catches under his tent before he can get it pinned down, and when it is fastened, and he finds his tight canvas turning the water like a cemented roof, and begins to rub his hands and feel himself comfortable, he finds but the beginning of trouble in a wet mat and coverlet.

"Among these barren and desolate mountains, there is frequently a small space of ground near some fountain or deposit of water, known only to the Arabs, capable of producing a scanty crop of grass to pasture a few camels and a small flock of sheep or goats. There the Bedouin pitches his tent, and remains till the scanty product is consumed; and then packs up his household goods, and seeks another pasture-ground. Essentially a pastoral people, their

only riches are their flocks and herds, their home is in the wide desert, and they have no local attachments; to-day they pitch their tent among the mountains, to-morrow in the plain. Abraham, himself, the first of the patriarchs, was a Bedouin, and 4000 years have not made the slightest alteration in the character and habits of this extraordinary people. Read of the patriarchs in the Bible, and it is the best description you can have of pastoral life in the East at the present day."

Mr. Stephens' party had, on their journey, overtaken a woman travelling the same route. "She asked us to her tent, and promised us a lamb or kid for supper. Her husband was stretched on the ground in front of his tent, and welcomed us with an air and manner that belonged to the desert, but which a king on his throne could not have excelled. He was the embodied personification of all my conceptions of a patriarch; a large loose frock, a striped handkerchief on his head, bare legs, sandals on his feet, and a long white beard, formed the outward man. To stop at the door of an Arab's tent, and partake with him of a lamb or kid prepared by his hospitable hands, all sitting together on the ground, and provided with no other implements but those which Nature gave us, is a picture of primitive and

captivating simplicity; but the details were such as to destroy for ever all its poetry, and take away all relish for patriarchal feasts. Our host laid his hand on a lamb, the long sword which he wore over his shoulder was quickly drawn, one man held the head and another the hind legs, and with a rapidity almost inconceivable, it was killed and dressed, and its smoking entrails, yet curling with life, were broiling on the fire." Passing over our traveller's description of the repast, which he says, cured him of all poetical associations and appetite,—he represents the position of the gentler sex among these children of the desert to be most deplorable. "In the tent of the Arabian patriarch, woman — the pride, the ornament, and the charm of domestic life—is the mere household drudge. When the stranger approaches, the woman retires. Even when alone, the wife of the Bedouin is not regarded as his equal; the holy companionship of wedded life between them has no existence; even when no guest is present she never eats with him. I have seen father and sons sit down together, and when they had withdrawn from the tent the mother and daughters came in to what was left. Away, then, with all dreams of superior happiness in this more primitive condition of society. Captivating as is the wild idea of

roving abroad at will, unfettered by the restraints of law or of conventional observances, the meanest tenant of a log-hut in our western prairies has sources of happiness which the wandering Arab can never know." In another place he says, "The Bedouins, among whom we were encamped, were a tall and stout race, and I thought I saw in them strong marks of the Jewish physiognomy, and the women were fairer and comparatively more feminine in countenance. One woman I saw might be accounted beautiful among the beautiful women of my own distant land. There was no colour in her cheek, but there was gentleness in her eye, and delicacy in every feature; and, moving among us, she would be cared for as a tender plant, and served with all respect and love: but here she was a servant; her days were spent in guarding her flock, and at night her tender limbs were stretched upon the rude earth."

In M. Lamartine's Travels in the East, is inserted a narrative of the residence of a native of Aleppo amongst wandering Arabs of the Great Desert; and in it mention is made of the tribe El-Ammour (A.D. 1811), living on he banks of the Euphrates (33° N. lat., 44° E. long.), composed of 500 tents; they supply Damascus and other places with sheep, camels, and butter. "We were in the middle of the

encampment of Would Ali: the aspect of it was very agreeable; each tent was surrounded by horses, camels, goats, and sheep, with the lance of the cavalier (horseman) fixed at the entrance. The tent of the Emir Douhi was pitched in the centre; he received us with all possible kindness, and made us take supper with him. He commands 5000 tents and three tribes, which are joined under his sway; Benin Sakhrer, El Serhaan, and El Sardié." In another place he says, "The tribe called El Dualla is numerous and wealthy. We saw 5000 tents covering the plain far as the eye could reach, filled with horses, flocks, and camels. I never saw such a spectacle of power and wealth as this encampment displayed; the tent of the emir was in the centre; it was 160 feet in length."

From the same work we have another picture of Bedouin life—this is four hours (twelve miles) from Palmyra (33° N. lat., 35° E. long.) :—

"The emir, Mehanna, was a man in his eightieth year, short, lean, deaf, and shockingly ill-dressed. His great influence with the Bedouins arises from the nobleness and generosity of his heart, and from his being the chief of a very ancient and very numerous family. He is charged by the pacha of Damascus with the escort of the great caravan as far as Mecca, receiving on that account twenty-

five purses (12,500 piastres), which are paid to him before the departure from Damascus. He has three sons, Nassar, Faresse, and Hamed; all three married and dwelling in the same tent with their father. This tent is 72 feet long, and as many wide; made of black horse-hair cloth, and partitioned into three divisions. At the end the provisions are kept, and the cooking affairs managed; the slaves also sleep there. In the middle the women have their abode, to which at night the whole family retire. The front part is destined to the men, and it is there they receive strangers, it being known under the designation of *rabha*."

After a sojourn of three or four days, Mehanna having issued orders for the departure of the tribe, by sunrise on the following morning not a single tent was to be seen pitched; the whole were rolled up in the form of cushions and placed on the camels, and the women and children of inferior rank were seated thereon. The women of the chiefs were carried in *handags* (a species of palanquin) placed on the backs of the tallest camels; these handags are richly adorned, covered with scarlet cloth, and ornamented with various coloured fringes. The movement of about 9000 persons was effected with celerity and order. "We marched ten hours without intermission. At three in the

afternoon, the march was suddenly arrested; the Bedouins dispersed into a fine plain, jumped to the ground, struck their lances in it, and fastened their horses to them. The women ran on all sides and pitched the tents near their husbands' horses. Then, as if by enchantment, we found ourselves in a sort of town, as large as Hama. The women alone had the office of fixing and taking down the tents, and they performed the matter with a surprising address and rapidity. They, in general, execute all the labours of the encampment."

The caravan to which Fatalla Sayeghir belonged, in its passage across the desert, anticipating a hostile meeting with the Wahabees, was joined by some troops from Damascus, and after two days' journey, they came up with the Wahabee host. "They fixed their camp an hour from us (a league). Their army was composed of fifty tribes, forming in the whole 75,000 (!) tents. They had their wives, children, and flocks with them."

In the Arabic poem of Antar are many vivid pictures of tent-life.

Dr. E. D. Clarke (Travels in the Holy Land, 1812), when near Acre (32° N. lat., 35° E. long.), speaking of the Syrian tents, says, "In viewing the camps of the country, we were struck by the resemblance between the ordinary tents of Eu-

ropean armies and those used by the Arabs in this part of Asia. Perhaps there is no act of man more ancient than that of constructing these temporary habitations; but although *simplicity* may be supposed their universal characteristic, they are by no means uniformly fashioned among different nations. A variety of climate necessarily modifies the mode of their construction.*

"The conic-dwelling of the Laplander is not shaped after a model borrowed from the wandering hordes of Tartary; nor does the lodging-place of a Calmuc Tartar resemble the wide-spreading airy pavilions of Syria. To what then can be owing the similitude which exists, in this respect, between a tribe of Arabs and the inhabitants of Europe, unless the latter derived the luxury and the elegance of their tents, as they did many other of their refinements, from the inhabitants of this country in the time of the Crusades? The manner of constructing this kind of dwelling has, we conceive, not undergone any material alteration. Here we behold them as they existed during the earliest ages of the world. The tent of the Arab

* Thus the construction of tents for the British army is a very great difficulty, in having to adopt or construct one that will suit both European and tropical climates.

chief, in all probability, exhibits at this day an accurate representation of the Hebrew *shapheer*, or regal pavilion of the land of Canaan: its Asiatic form, and the nature of its materials, render it peculiarly adapted to the temperature of a Syrian climate; but viewing it in northern countries, where it appears rather as an article of elegance and of luxury than of comfort or of utility, we can perhaps only explain the history of its introduction by reference to events, which for more than two centuries enabled the inhabitants of such distant countries to maintain an intercourse with each other."

Burckhardt, in speaking of the Aenezes, a most ancient and powerful nomad tribe who inhabit the neighbourhood of Heit, on the Euphrates (33° N. lat., 42° E. long.), says: "The tent is denominated 'beit' or house; its covering consists of pieces of stuff made of black goat's-hair, about three-quarters of a yard in breadth, its length being equal to that of the tent; according to the depth of the tent ten or more of these pieces are stitched together. This goat's-hair covering keeps off the heaviest rain.

"It is usual to have nine poles, or posts, three in the middle and an equal number on each side. The centre pole is generally about seven, and the others about five feet in height. The covering is fastened or secured by ropes,

and then pegged to the ground at about three or four paces from the tent.

"The tent is divided into two parts—that on the left for the men, and that on the right for the women. A white woollen carpet of Damascus manufacture is drawn across the tent and fastened to the three middle posts, and thus forms a partition. A good Persian or Bagdad carpet generally covers the ground of the men's apartment; besides they take charge of the wheat sacks and camel bags, which they pile up round the middle post. Not so comfortable is the women's apartment, as it is the receptacle of all the rubbish of the tent; the slave and dog usually sit and sleep there also.

"The back part of the tent is closed by the '*Rawak*,' a piece of goat's-hair stuff from three to four feet high.

"During the summer the three front posts are sometimes not employed, and the tent is supported only by the middle and hind poles, being wide open in front. Should the tent have only two 'wasats' or middle posts, it is generally about thirty feet long, and even when all the posts are up its breadth or depth is at most ten feet.

"The 'Aeneze' tents are always of black goat's-hair, and these people possess only one tent for each family."

The Arabs about Askalon are Egyptians and Moors, and they use white tents.

It is the common custom at the present day for people in the East to live in tents at certain seasons of the year; partly owing to the innumerable vermin by which the modern houses are infested during the great heats, and partly owing to tents being cooler to sleep in at night. It was, and is still, the Eastern custom to pitch tents near water springs and fountains. Turkey abounds with the latter, at convenient distances on the main routes, constructed chiefly by wealthy Turks to refresh the weary traveller. The following stanza from Bedavi, a Persian poet, will illustrate that ancient custom; speaking of the shepherd, he says :—

"Or haply, when the summer sunbeam pours
Intensely o'er the unshaded wide extent,
He leads instinctive where the grove embowers,
And rears beside the brook his shelt'ring tent."

PERSIAN TENTS.

PERSIA (called Iran by the natives, lying between 25° and 46° N. lat., and 46° and 70° E. long.) has a most extraordinary climate; but although there is most sudden transition from excessive heat to snow, it produces a luxuriance of vegetation which is rarely met with even between the tropics; consequently, the necessaries of life are produced with little labour, and great encouragement is hence afforded to idleness. Persia consists of a great number of nations who speak different languages, but all of them belong to the Caucasian race. Many of these nations still adhere to a wandering life; it is even said, one-fourth of the population consists of nomadic communities. The wandering tribes of Persia are comprehended under the general name of Eelauts, Iliyats, or Ilat, and are found in every part of the kingdom, but many of them have become inhabitants of cities and villages. These tribes are accordingly divided into *Shehr-nishin*, or dwellers in cities, and *Sahrá-nishin*, or dwellers in the field. A considerable number of them adhere to their original mode of life, and live all the year round in tents; in the winter keeping to the plains, and in summer seeking the pasture of the mountains. They

breed camels and horses for sale, and their sheep yield milk, which is made into *raughan* (liquid butter), and sold throughout the country. Some of these tribes have the almost exclusive possession of large tracts of country. The most numerous tribe is the Lurs, who inhabit Luristan; the Kurds are the next important, who number 50,000 families; they inhabit the mountain region of Khorassan :—

> "That delightful province of the sun,
> The first of Persian lands he shines upon."

The Kurds are governed by five chiefs, of whom the Khan, of Kuboshan, is the most powerful.

To the south-east of these Kurds, between Mushed and Herat, there is a tribe of Arabs who are all *Sahrá-nishin*; they number some 6000 tents. There are also in Persia several Turkish tribes, the most numerous among them are the Shekagi, who dwell in towns—from them most of the foot-soldiers of Persia are drawn—and the Shah-seven, calculated at 20,000 families; these mostly live in tents.

Luristan is entirely occupied by mountains and narrow valleys, except some plains of moderate extent; these plains alone are under cultivation, the remainder serving only as pasture-ground for the wandering Lurs. In the centre of the mountains is a tract eighty miles in length without a single human habitation.

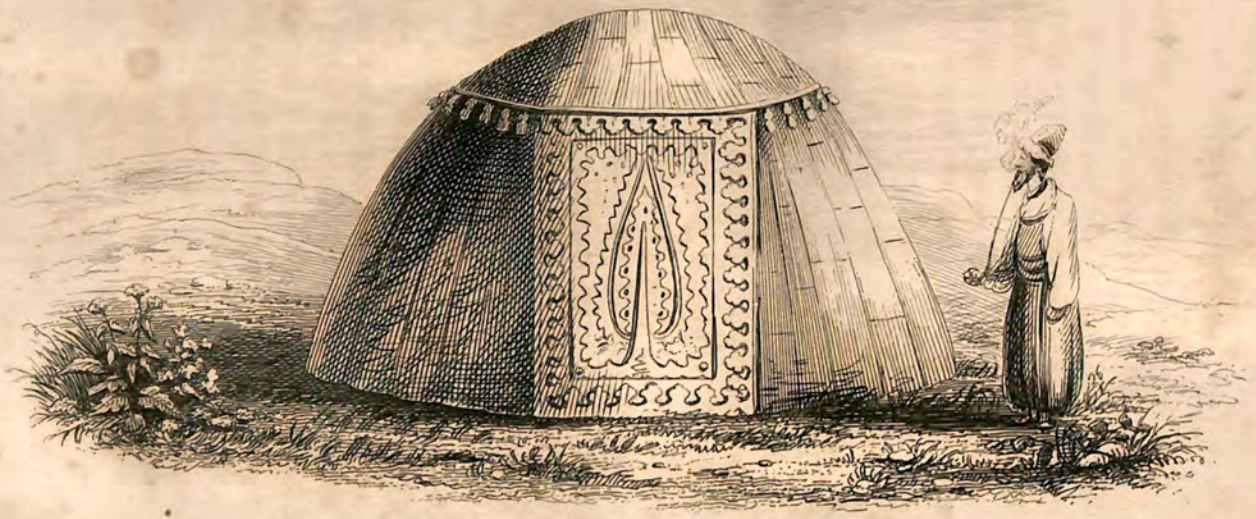
The province of Khuzistan, which comprehends the southern part of the mountains of Kurdistan, is, properly speaking, divided into two portions: the plain, which contains good pasture-ground, is where the wandering tribes of Arabs pitch their tents; the other part is a sandy desert with occasional morasses.

It is said that the process of felting was brought into Europe by the Crusaders, who found that the tents of the Orientals were covered with that substance.

Mr. Morier, in his second journey through Persia, made in 1811, says: "Then we passed Lahar, close to a small valley, where we found several snug encampments of the Eelauts, at one of which we stopped to examine the tent of the chief of the *Oban*, or family. It was composed of a wooden frame of circular laths, which was fixed on the ground, and then covered over with large felts,* that were fastened down by a cord ornamented by tassels of various colours. A curtain curiously worked by the women with coarse needle-work of various colours was suspended over the entrance, forming the door."

For the King of Persia's tents magnificent *perdehs*, or hangings of needle-work, are sus-

* I presume its construction is somewhat similar to a beehive made of straw.



Alfred Aldard Sc.

Persian Tent of the Elauts

pended, as on the doors of the great mosque, and also at the inside doors of all private houses in Turkey. These circumstances combined will perhaps illustrate the "hanging for the door of the tent, of blue, and purple, and scarlet, and fine twined linen, wrought with needle-work." (Exod. xxvi. 36.)

In another part Mr. Morier says: "We found the plain of Ojan entirely covered with tents, and long before we reached, or even saw the camp, its situation was pointed out by a dense vapour which hung over it.

"The position and general appearance of the camp of Darius before the battle of Issus, 333 B.C., is very characteristic of a modern Persian camp, and of what we saw at Ojan. 'By the time the reconnoitring party (which Alexander had despatched) had returned, the extended multitude could be seen at a distance. Then the fires began to blaze throughout the Persian camp, which had the appearance of a general conflagration. The space over which the irregular mass spread was more dilated on account of the number of their cattle.' (Quintus Curtius, lib. iii. c. 8.)

"Around the pavilion of the king to an immense extent, at various intervals, was spread the camp, consisting of tents and pavilions of all colours and all denominations. An order

had been issued that every tent in the camp should be pitched with its entrance immediately facing the royal pavilion, by which it was intended that every one who came forth should make the *serferon*, or bow of the head, to the royal abode, an invention in honour scarcely to be exceeded by those Alexander exacted. The princes were lodged in large pavilions surrounded by the distinguishing *ser-perdéh* (royal curtain or screen); the viziers and other great officers were in similar tents, but without that outward screen; the other troops in small tents of varied kinds. The tents of the horsemen were known by their long spears being stuck upright at the entrance, those of the infantry by their matchlocks.

"The Persians enjoy as many luxuries in their tents as they do in their houses, and their habits of migration have taught them great facilities in the manner of transporting their baggage. Many of the great personages have tents with boilers attached to them, which they convert into hot-baths as soon as they become stationary at one place for any time; and we may suppose this to have been the case formerly, for in the Cyropædia (lib. iv. c. 3) it is mentioned that the Medes and the soldiers of Tigranes bathed themselves in camp, all matters for that purpose having been provided.

"The number of Persians collected together at this camp was computed to be above 80,000, of which one half were military and the other camp-followers."

Nadir Shah, out of the abundance of his spoils, caused a tent to be made of such beauty and magnificence as to be almost beyond the power of language to describe. The outside was covered with fine scarlet cloth; the lining was of violet-coloured satin, on which were representations of all the birds and beasts in the creation, with trees and flowers, the whole being composed of pearls, diamonds, rubies, emeralds, amethysts, and other precious stones; and the tent-poles were decorated in a like manner. On both sides of the peacock throne was a screen, on which were figures of two angels in precious stones. The roof of the tent consisted of seven pieces, and when it was transported to any place, two of these pieces, packed in cotton, were put into a wooden chest: two of which chests were sufficient load for an elephant. The screen filled another chest. The walls of the tent, the tent-poles, and the tent-pins, which latter were of massy gold, loaded five other elephants; so that for the carriage of the whole were required seven elephants.—(Gladwin's 'Khojeh Abdul Kurreern.')

Francklin, in his Tour from Bengal to Persia,

in 1787, says, "I was admitted to an audience of Jaafar Khan, at Shirauz (29° N. lat. 53° E. long.). The tent of the khan was a noble one, of an oblong form, and pitched with three poles, that were adorned at the top with gilt balls. The front is open in all weathers; the inside was lined throughout with a beautiful clouded silk; the floor was covered with a rich carpet and long felts."

HINDUSTAN TENTS.

In the immediate neighbourhood of the kingdom of Persia, and in the desert and valley of the Indus, is a singular and ancient people called *Kaorwás*, one of the Rajpoot tribes. Rajast'han lies between 23° and 31° N. lat. and between 70° and 77° E. long. Lieut.-Col. Tod, in his account of the country (1829), speaking of the *Kaorwás*, says, "They are but few in number. They have no fixed habitations, but move about with their flocks, and encamp wherever they find a spring or pasture for their cattle; there they construct temporary huts of the wide-spreading peloo, and by interlacing its living branches, covering the top with leaves, and coating the inside with clay, in so skilful a manner

do they thus shelter themselves, that no sign of human habitation is observable from without."

The restless disposition of the Kaorwás, who, even among their own roaming brethren, enjoy a species of fame in this respect, is attributed to a curse entailed upon them from remote ages. They rear camels, cows, buffaloes, and goats, which they sell to merchants.

This is one of the Indu-Scythic tribes who are supposed to have come anciently from the borders of the Caspian Sea. Thus all the tribes east of the Caspian are called Scythic (see Strabo, lib. xi.). Diod. Siculus (book ii.) relates, their origin was said to be from a virgin born of the earth (Tellus or Ella), of the shape of a woman from the waist upwards, and below a serpent; that Jupiter had a son by her named Scythes, whose name the nation adopted. Colonel Tod is of opinion that "the Scythic Pali were the shepherd invaders of Egypt; as it is related that Scythes had two sons, Palas and Napas, who were celebrated for their great actions; they led their forces as far as the Nile in Egypt, and subdued many nations. They enlarged the empire of the Scythians as far as the Eastern Ocean. They overran Assyria and Media (B.C. 624). These invaders are expressly stated to have multiplied in the countries west of the Indus. I have thus traced these Scythic Pali

from the Caspian to the Nile, and from thence to the banks of the Indus: they are now called Rajpoots, or Royal Pastors." Colonel Tod suggests that these Kaorwás are descended from the first reported ruler of Egypt, the son of Shem; but some other writers consider the Scythians to be the same people with the Gomerians, as descended from Gomer, the eldest son of Japhet.

Colonel Tod says further, "I have perhaps deviated from the primitive subject of my history about tents and portable huts, but trust my readers will kindly bear with me, having only the desire of endeavouring to prove that the Kaorwás' temporary huts of the present period may be fairly supposed to have similarly existed and been used by their ancestors in Egypt about 2247 B.C. I believe that there is at the present day in Egypt materials from which similar huts could be constructed; and I trust thus sufficiently to have traced back to a very early period the form and construction of some of the earliest huts of the nomadic tribes.

"The *lescar*, or imperial camp, is divided, like a regular town, into squares, alleys, and streets, and, from a rising ground, furnishes one of the most agreeable prospects in the world. Starting up in a few hours in an uninhabited plain, it raises the idea of a city built by enchantment. Even those who leave their houses in the cities

to follow the prince in his progress are frequently so charmed with the lescar, when situated in a beautiful and convenient place, that they cannot prevail withthemselves to remove. To prevent this inconvenience to the court, the emperor, after sufficient time is allowed to the tradesmen to follow, orders them to be burnt out of their tents."—(Dow's Hindostan.)

"His camp, like that of most Indian armies, exhibited a motley collection of covers from the scorching sun and the dews of the night, variegated, according to the taste or means of each individual, by extensive enclosures of coloured calico surrounding superb suites of tents; by ragged clothes or blankets stretched over sticks or branches; palm-leaves hastily spread over similar supports; handsome tents and splendid canopies; horses, oxen, elephants, and camels; all intermixed without any exterior mark of order or design, except the flags of the chiefs, which usually mark the centres of a congeries of these masses; the only regular part of the encampment being the streets of shops, each of which is constructed nearly in the manner of a booth at an English fair."—(Colonel Wilks' Sketches of the South of India.)

MANTCHOW TATAR TENTS.

FATHER GERBILLON, a French missionary, who was in Chinese Tartary about the end of the seventeenth century, thus describes the tents of the Mongous, as he calls them: "Their tent is a sort of round cage, made of slender sticks, from 13 to 14 feet in diameter; they are about 8 or 9 feet in height from the ground in their centre. Larger and smaller tents are also constructed. The frame-work has a roof commencing at about 4 feet from the ground, and terminating in a point, like the roof of a round tower or a pigeon-cot box. These tents are covered with separate pieces of stuff, made of fulled but not unwoven cloth. Whenever they light a fire within the tent the centre piece of cloth which crowns the tent is removed, to allow of free egress to the smoke." It is this race that conquered China, A.D. 1618, and the same that now governs the country.

CALMUC TATAR TENTS.

THIS is a nation much more widely dispersed over the globe than any other, even the Arabs not excepted (from 35° to 50° N. lat. and from

63° to 120° E. long.). There are many branches of them, the greater part in the Chinese empire; the Russian dominions, however, contain a considerable number. Having no fixed abodes, they reside in tents or moveable huts. They are said to live entirely on animal food, and do not cultivate the ground. They have large numbers of camels, horses, and sheep, but not many cattle. Mr. Bell, who was in the country in 1716, tells us that he visited an encampment of the Calmuc Tatars, generally called "Black Calmucs," near Saratoo, about 850 versts from Cazan; these tents were pitched along the side of the small river Cazanka. Their tents are of a conical figure: several long poles are erected, inclining to one another, which are fixed into something like a hoop, that forms the circumference of an aperture for letting out the smoke or admitting the light. Across the poles are laid some small rods, from 4 to 6 feet long, and fastened to them by thongs; this frame is covered with pieces of felt, made of coarse wool and hair. These tents afford better shelter than any other kind, and are so contrived as to be set up, taken down, folded, and packed up with great ease and quickness, and are so light that a camel may carry five or six of them.

THE TENTS OF THE TUSKI.

On the extreme northern and eastern point of Asia, and in that extensive part of the Russian empire denominated Siberia, are a nomadic people, known by the name of Tuski or Tshooktshes, who inhabit a large tract of country. To the west these tribes are met with as far as Choun Bay, 170° E. long., and southward they are in possession of the whole basin of the Anadyr river, near to Behring's Straits. These people are divided into two distinct tribes, differing in language and in physical character, as well as in their mode of living, but holding friendly intercourse with each other. They are considered to be descended from the pure Mongolian race. Lieutenant Hooper, R.N., who was, in 1848, in the "Plover," and wintered in the country prior to proceeding on the search for Sir John Franklin's expedition, distinguishes them thus:—1. The Rein-deer or Pastoral Tuski, who are supposed to be the original proprietors of the soil; 2. The Fishing or Alien Tuski. Their huts or tents are all of similar form and materials, and differ only in size, cleanliness, and convenience. The Fishermen Tuski keep their tents in a very filthy and abominable state—just the reverse of the Pastoral tribe.

"The form of the 'Yarang,' or tent, is mostly circular, or oblong spheroidical, depending upon the dimensions. They are constructed of a rounded form, to prevent snowdrift from collecting at the gables, and to oppose few points to the fierce winds which sweep remorselessly over these treeless regions.

"The 'Yarang' varies from 10 to 12 feet in diameter, but some measure from 30 to 40 feet in width. Their method of construction consists of placing one, two, or three (according to the size of tent required) props or poles perpendicularly on the ground and close together. Around are ranged, at equal distances, ribs of the whale, the top ends protruding and crossing each other, and thereby joining and supporting the poles at their tops. This framework is covered by walrus skin, tightly stretched and neatly sewn. The skin is so beautifully cured and prepared as to retain its elasticity, and also to be semi-lucent. So much light being admitted by the roof, no windows are necessary.

"An aperture, on the most sheltered side, serves as a door, over which, when not in use, a screen of walrus skin is drawn."

Lieutenant Hooper says, he saw a walrus skin of an enormous size, which could not have contained less than 70 or 80 square feet, and the whole was clear as parchment.

Of the interior arrangement of the "Yarang" we are told:—"In the smaller, a single apartment, frequently scarce large enough for two persons, runs across the hut opposite the door; while in the tents of chiefs, who have generally three or four generations living under their roofs, the sleeping places extend in a front and two sides nearly round the walls of the dwelling. These extraordinary chambers are formed by posts let into the soil at a distance from each other, and from 6 to 8 feet from the exterior walls, on which, at heights varying from 3 to 5 feet, a roof of skins and laths is supported; thick layers of dried grass are placed over all, to exclude the cold; deer-skins, dressed with the hair on and closely sewn together, hang from the edge of this roof on the inside, and can be drawn aside or closed at will, when they entirely exclude the external air.

"On the ground are stretched more well-cured walrus skins, over which, when repose is taken, those of the rein-deer, or Siberian sheep, beautifully prepared, are laid. Above, close under the roof, against the sides of the hut, small lattice-shelves are slung, on which mocassins, fur socks, and the dried grass, which the more prudent place in the soles of their boots to absorb moisture, are put to dry.

"A species of dish, oval and shallow, manu-

factured of a plastic material, and afterwards hardened, but from its appearance possibly cut out of stone, serves as a lamp. Against a ridge, running along the middle and about an inch high, fibres of 'weet-weet,' or moss, are neatly arranged, only their points showing above the stone-edge: the dish is filled with train-oil, often half-frozen, and a light of peculiar beauty is produced, giving enormous heat, without, when well trimmed, either smoke or smell; and it was certainly one of the softest lights imaginable; not the slightest glare to distress the eyes.

"Around the centre wall are arranged any trifling articles which may be possessed; wooden vessels, scooped from driftwood, are placed in the corners; they contain ice and snow, of which the Tuski consume vast quantities.

"The area of the 'Yarang' not occupied by the saloons is used quite as an ante-chamber or hall of entrance: here, food is deposited previous to preparation for cooking, much of which is also done over larger lamps than those inside. Here are unloaded sledges and the porters of ice and snow, the sledges being placed on the roof of the sleeping apartment. Here, too, the dogs feed and sleep, the faithful creatures ever seeking to lie close to their masters at the edge of the inner rooms, and even thrusting their noses into the warmer atmosphere (frequently from

90 to 100 degrees). The entrance to the inner chambers is protected by means of skins hanging from the top."

SAMOYEDES' TENTS.

ANOTHER Siberian people are the Samoyedes, who appear to be one of the most widely spread nomadic nations of Northern Asia. The tribes of Samoyedes inhabit two large tracts, one of which extends along the shores of the Polar Sea, and the other on both sides of the Altai Mountains, within the Arctic Circle, and from 60° to 110° E. long. Thus there are northern and southern Samoyedes. The northern tribes wander about the country which occupies the western portion of Siberia. They maintain herds of rein-deer, which they use only for drawing their sledges. They live on the produce of the chase, of which the principal are wild-deer. The sea supplies them with white bears and other animals, and dead whales are often carried to their shores. They occasionally occupy themselves with fishing. The southern Samoyedes inhabit the neighbourhood of the Altai Mountains, and extend to the territory of the Chinese empire. Some of these tribes live entirely on the product of the chase: they take sables and squirrels, and

by them pay tribute to Russia. A few have adopted agriculture, but they also eat the roots and stems of some wild-growing plants. The Chinese Samoyedes, however, inhabit a rich pasture country, and have herds of horses, black cattle, and camels. They are all heathens, and profess the religion called Shamanism. The different tribes speak different dialects of one language, which differs from all the neighbouring nations.

Being entirely wanderers, their only habitations are tents; and these dwellings, composed of pieces of the bark of trees, sewed together and covered with rein-deer skins, are constructed of a pyramidal shape, on poles of a moderate thickness. An opening is contrived at the top of this tent for the purpose of leaving a passage for the smoke, and this is closed when it is desired to increase the warmth. As the folding up of the tent is to these people an easy matter, they transport them from place to place by means of their rein-deer. The families generally live apart, for seldom more than three tents are to be found in the same neighbourhood. In the Russian chancellary at Archangel the Samoyedes are designated by the title of "Sirognefazi," or eaters of raw meat.

We have, in Adolph Erman's Travels, who was in the country in 1829, considerable infor-

mation respecting the Samoyedes:—"On reaching the 'Chínn,' or tent, at sunset we found it to be exactly the same form as that of the 'Reindeer Ostyaks.' The tent I am about to describe belonged to the eldest of the people, about sixty years old. His dress was composed of furs of different kinds, sewed together so as to give the effect of colour and contrast. He had a white beard, drawn to a point, which projected forwards from under his chin. I had not seen the like before among any of these people. The women I saw were clothed in furs also."

In describing the mode of pitching their tents, on coming to a suitable spot, Mr. Erman says:—"After a good journey with the rein-deer we halted, at about 5h. 30m., on a level spot. Our drivers began busily to grope with their hands in the snow; and, on pulling out tolerable large bunches of lichen, the place was pronounced suitable for a night's station, and the rein-deer were immediately unharnessed and turned loose. One of the men then cut down a stem of larch, which he split into small pieces for fuel; the rest of the business devolved on the woman. She picked out two of the tent poles, which were tied together at the upper end with a flexible thong, and set them up, in the first place, leaning against each other; with their lower ends in the snow; the other poles were

then ranged round the junction of the first pair, so as to form a conical frame with a basis 15 feet wide; and on one side an open space of about 2 feet was left between the poles for the door.

"In covering the tent, the same principle was followed which is observable in the Ostyak clothing, for immediately on the poles was a layer of skins, with the hair turned inwards, like the 'Malitza;' while a second layer, like the 'Park' or 'Gus,' covered that, with the hairy side turned to the air. For this purpose, long, ready-lined strips of rein-deer skin are permanently sewed together, and were in this instance very cleverly wrapped over the tent-frame. This is done by two persons, who hold up, with poles, the two ends of the skin-covering till it is nearly on a level with the top of the frame; then, one of them goes on with his pole round the tent till the skin is wrapped in a spiral form close upon the framework. The different pieces were thus laid one upon the other, overlapping at the borders like roof-tiles; and, without any fastenings, they kept their places by their weight, which contributed, perhaps, not a little to hold the framework together. We have already described how the door of the tent is formed by the lower end of one of these leathern pieces. At the height of about 4 feet

from the ground the woman now fixed two horizontal cross-sticks to the tent-poles, to support the kettle; then she kindled a fire and fed it with chips of wood, which lay on a box filled with sand, in the middle of the tent. One of the men, in the mean time, had thrown up the snow with a wooden shovel, which they carried with them, till it was about a foot high round the tent; and, as there was a great deal of smoke inside, he made an opening in the cover towards the wind: at the top also, where the poles met, there was a space left uncovered to carry off the smoke. In the interior of the tent the snow was covered in one place by a rush matting, which was the owner's seat and bed. For the guests, rein-deer skins and fur clothing were spread upon the snow in the remainder of the tent.

"In half an hour after our arrival the fire was burning cheerfully, and the most important preparations were complete. Then the party, all in good humour, entered the tent together, and seated themselves round, with their backs to the hairy covering and their feet to the fire. Here, too, the men stripped the upper part of the body, and covered with the furs only their backs, which were leaning against the cold sides of the tent; but the breast was exposed naked to the fire, and was in this way more quickly and sensibly heated by the radiation.

"I observed among the Samoyedes of our party an important deviation from the Ostyaks in their clothing, for their frocks or shirts were slit down in front like a Tatar khalat, being kept close by the girdle, one side wrapped over the other in the open air; whereas now, the two halves were thrown back to lay bare the breast. After completing the repast, consisting chiefly of a porridge, some dried and pounded fish, and all were satisfied, every one stretched himself on the ground, wrapping himself up carefully with his fur garments and other skins. This proved to be a complete protection, for the people slept soundly and tranquilly, and yet the snow beneath them and immediately around the tent was at the low temperature of 28° R.; the passage for the smoke, also, at the top of the tent, remained open, and the influx of cold air from above could have been checked only while the fire was brisk, by the ascent of a warm current.

"As early as five o'clock in the morning, after a comfortable sleep of seven hours, the inmates of the tent all awoke. A few embers were still glimmering on the little hearth and helped to the speedy revival of a blazing fire. While waiting for the dawn we made some tea, and the Samoyedes breakfasted on porridge and reindeer flesh. These tent-Samoyedes employ reindeer alone for draught. It is also their custom to

heap up in the tent the whole stock of food belonging to its inhabitants, on the floor opposite to the doorway; and this part of the dwelling, which they call *sinikui*, is then regarded with a kind of religious punctiliousness; for the women, who, when busy about domestic affairs in the tent, make no difficulty in walking over the sitting or sleeping places of the others, will never tread casually within the precincts of the *sinikui*. On my arrival, too, I was asked for my stock of tea and other articles of food, which were laid by in the general depository till wanted for use."

OSTYAKS' TENTS.

SOUTH of the Samoyedes are the Ostyaks, who occupy both banks of the river Obi, from Obdursk upwards from the confluence of that river with the Irtish—and even south of this place are some families of the Ostyaks—ranging from 55° to 60° N. lat., and from 65° to 85° E. long. They are described as a small race and feeble; their hair approaches to red, or at least is light. Their language has some affinity with the Finns. In summer they subsist principally on fish; in winter they hunt wild animals, as deer, foxes, bears, and squirrels. The majority are addicted to Shamanism, but some few families have been for more

than a century converted to Christianity. They numbered some years back 100,000 individuals, but Erman was informed that the number is decreasing, which is probably to be attributed to the circumstance that the Russians, who have settled in the country, have found means of occupying the best fishing-places.

M. Erman was at a place called Kelgat, on the Obi, and he says, "The country of the Ostyaks, a portion of the great steppe, contains numerous lakes and pools. The district is in many places extremely fertile, and along the watercourses the grass grows luxuriantly. The Lake Tschany, the largest and most northerly of the great group of lakes, abounds in fish; the surrounding country is extremely fertile, and there is an abundance of aquatic fowl, which, with the fish, affords the chief nourishment of the Tartar tribes who live dispersed along the frontiers of this canton. In some parts of the district, are great quantities of elks, roebucks, and wild boars. The Kirghis of the great horde occupy the more mountainous lands; these are wandering tribes, and make frequent incursions on their more peaceful neighbours the Calmucs.

"There were here only two conical tents, wherein our new hosts had just established themselves in the middle of the forest. Portable nomadic dwellings of this kind are here called

chumúi (singular, *chúm*). Long poles, in an inclined position, were fastened together at the upper end, while their lower ends, about a foot asunder, stood on the ground so as to form a ring.

"This frame-work was covered with rein-deer skins, an opening being left only at the point of the cone, and at one place the poles stood more widely apart, so as to allow one, lifting the corner of the skin, to creep into the tent. In the middle of the tent was a blazing fire: all the men were sitting on skins with the upper part of their bodies bare, and their backs against the hair of the tent-covering.

"By means of three cross-sticks, tied in a horizontal direction to the tent poles, the pot was hung over the fire to melt some snow that we might dress our fish.

"Two women of middle age were also sitting on the ground, with all their usual clothing, and they were wrapped up even below the shoulders with the veiling head-dress, which was here made of Russian woollen stuff."

They are very shy at exposing their features —"at first the women concealed their hands too under their clothing, and some persuasion was necessary to induce them to put them forth so far as to let me see, on their fingers, not only the metal rings which they wore for ornament, but

also a tattooing which I remarked here for the first time and quite unexpectedly. Several parallel lines of blue points were marked across the joints of each finger. On some of the men also I observed blue spots or stains on different parts of the body; in general, the custom of tattooing, or of marking the skin by acupuncturation, is, in Northern Asia, extremely rare; for, with the exception of the family here mentioned, I found it existing only among the Tungusian inhabitants of the Icy Sea (January 28th, 1829); and there, as well as here, only in an imperfect and unrefined state. We find that in the time of Xenophon (400 years before Christ) the same custom existed among the Mosynoeci, a perfectly white people under the parallel of 40° N., and in 37° 30′ E. *

"The Ostyaks mix with Samoyedes and Voguls on the common pastures, but in winter they visit their friends settled on the Obi, in order to procure a stock of dried fish."

It appears that the days were of very short duration, as M. Erman says, "The day lasted three hours: the sun at noon attained an elevation of 1° 40′ above the horizon, but was never visible, as the sky was clouded."

M. Erman having now continued his journey

* Xenoph. Anab., v. 4. 32.

southwards, and in an easterly direction, we find on the 15th February, 1829, he has traversed the great lake, called "Mare Baikal," situated between 50° and 55° N. latitude to 100° to 110° E. longitude, and arrived at Arsencheva, a small station situated on the left bank of the river Selenga, and on the north-east boundary of the Chinese empire.

He describes the tents and encampment of a family of the Buraets, a nomadic Tatar tribe. Leaving Monakhonova, a station in the neighbourhood of Arsencheva, on 24th February, 1829, and by re-crossing the great lake Baikal and following the windings of the River Lena as far as the town of Yakutsk (chief town of the province of Yakutsk), we find our enterprising traveller there by 8th April:—after remaining a short time he leaves the Lena and, taking a due easterly direction, arrives at Talbuiyakhtatsk, a small post-station; he describes the frame of a tent, which he saw standing, belonging to the Yakut tribe, and used by them as a summer abode:—[The Russians call these tents, *berostirnni*, from *beresa*, the birch, because they are covered with the bark of this tree.] "It is formed of a number of poles, about twenty feet long, which are united at the top into a roomy cone. Here the people were, in fact, repairing a roof of this kind. It was made of quadrangu-

lar pieces of bright yellow and perfectly flexible bark, which was not merely joined together, but was very handsomely worked along the seam with horse-hair thread.

On reaching the banks of River Aldan* (63° N. latitude, 130° E. longitude) our traveller meets with the tribe of Tungoozes, which inhabit this district, and in the summer months retire into the thick of the forest and neighbouring mountains. They are nomads in the fullest sense of the word, and subsist entirely on the produce of the chase; game is plentiful, among which is found the argali, or what is here called, the wild or rock-sheep—in Russian *dikyi*, or *kamenyi barán*—the chubuka of the Yakuts.

The Tungoozian hut is similar to the Yakut's, and at Yudomsk was covered with birch-bark: here is a considerable river, which flows to the S.S.E., called by the Tungoozes Okat, which signifies, in a somewhat exclusive sense, 'the river;' from this word has sprung the Russian name Okhata, and with it the name, also, of the port of Okhotsk, where the river meets the ocean.

The western branch of this chief river of the country is called, by the Russians, the great Okhota, and also the Arka.

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* It joins the Lena: here the finest sables are found.

Here, "the fishing Tungoozian tent, wherein we spent the night, was of a conical form, like all the other tents that we had seen hitherto, and so roomy as to afford to each of us a good sleeping-place, besides those occupied by the six members of the family; but instead of the felt, the rein-deer skin, or the birch bark, which we had hitherto found used for roofing, the covering of this tent was made of fish-skins sewed together, like the upper clothing and the boots of the Verkhovian Ostyaks. We found ourselves very snug in this tent so long as the fire was burning in the middle, but as we awakened towards morning, it blew very cold through several broken places in the roof, and I congratulated the owner on the prospect of his being soon able to procure the materials of a new tent-covering from the river.

"At Arki our rein-deer were replaced by dogs, and our long sledges or narts were drawn by them, twelve to each nart; and thus on 19th May, 1829, we entered the sea-port town of Okhotsk. It is situated on the north-west side of the Okhotsh Sea, 55° N. latitude, 143° E. longitude."

TENTS OF PEOPLE IN CHINESE EMPIRE.

THE Chinese are a settled people, and the enormous population demands the utmost industry in cultivation of the earth for food, and hence agriculture, the source of food, has been encouraged beyond every other species of industrial labour. In China Proper there is no meadow cultivation whatever; nothing is raised by labour for the food of cattle, but all for man, since the very small number of horses, oxen, or sheep, maintain themselves as they can on pastures unsusceptible of cultivation;. and in no other country is so much derived from the waters. On the banks of the rivers there are margins of meadow where the flocks and herds depasture; but it appears these are lands liable to be flooded, but not sufficiently wet for rice or cotton cultivation.

The nomad tribes, whether Tatar or Mongolians, who may be considered independent,—although nominally under the sovereignty of China,—are wanderers, and occupy the whole of the northern part of the empire on both sides of the great wall. We have, in the travels of Father Gerbillon, a Jesuit missionary, who was in the country between the years 1670–72,

which are inserted in Du Halde's work, the best account of these tribes.

The proper Mongols are divided into three great nations—the Tshakhar, Khalkas, and Sunnit. The Tshakhar inhabit the best part of Mongolia, being in possession of the tract which skirts the great Chinese wall on the north, and extends to the Ta-Gobi, a distance of from 150 to 200 miles from the wall. The Khalkas occupy the northern part of Mongolia, along the southern boundary of Siberia. The Sunnit occupy the country between the Tshakhar and Khalkas, or that part through which the Ta-Yobi extends; they are not so numerous as the others, and are held by the Chinese in less esteem. The Mongol race is characterised by a short stature, dark yellow colour, flat nose, strong cheek-bones, large and prominent ears, and by the almost complete absence of beard: they differ widely from the Tatar or Turki tribes, who have the same striking features of the finely-formed and light-coloured Caucasian family, to which they belong. The Scythians, who devastated Media and Persia in the sixth century before Christ, were undoubtedly Mongols. Ghengis Khan and Kublai Khan were both Mongols. The Mongols and Tatars are addicted to the same nomadic mode of life; hence they are frequently confounded.

THE MONGOLS.—This nomadic race occupied the north-eastern boundaries of China, and, although governed by their own princes, were dependent on the Emperor of China. Divided as they were into many different nations, though still of the Mongolian race, their country extended from the eastern borders of China even to the Caspian Sea. Thus "they dwell in tents, and live on their flocks, which they remove from pasture to pasture. The princes of each tribe affect to distinguish themselves one from another in nothing but the largeness and number of their tents, and the multitude of their flocks.

"The Mongous were once a powerful nation, and in the year 1264 conquered the empire of China, which again was subdued by the Mantchows. The Mongous have all sorts of animals, yet the skins which they use in general to clothe themselves are those of their sheep and lambs; the wool they turn on the inside, and the skin without; they likewise dress the skins of stags, deer, wild goats, &c., which the rich in some parts wear for spring dresses; but, notwithstanding all their pains, you smell them the moment they come near you, and this undoubtedly occasioned their Chinese name Tfao-ta-tse. Their tents generally smell like sheep-folds, so as hardly to be endured; wherefore (says Du

Halde) the best method a person can take when he is fallen into this new world, where the skins of beasts serve for clothes, and the houses are carried upon waggons, is to reverse his tent, and afterwards to place it some distance from where it stood before, that the nauseous air may evaporate.

"However, these tents are more commodious than the common tents of the Mantchows, which have only a single or double cloth, whereas those of the Mongous are round, and covered with a thick felt of a grey or white colour, and sustained within by poles tied round two half circles of wood, which join together, and make the superficies of a broken cone, for they leave a round opening at the top, towards the point, to let out the smoke of the fire, which is placed in the middle of the tent. As long as this fire lasts they are warm enough, but then they are soon cold again, and in the winter, without a great deal of care, would freeze in their beds.

"To avoid this inconvenience, together with some others, or at least to alleviate them, the Mongous take care to make the entrances to their tents very narrow, and so low that you cannot go in without stooping. But to join so many different parts with such exactness, so as entirely to shut out the searching blasts of the

north wind, is certainly no easy task, and especially in an open country, where they are felt longer and more severe than in other parts. These tents are also less tolerable in summer, because of the heat, and in particular by reason of the damp occasioned by the rains which penetrate within, and the dirt which surrounds them without; but such is the force of education, that they appear to all these nations in general preferable to the Chinese houses, and that for no other reason but the pleasure they take in changing their situations according to the different seasons. In winter, for example, they remove into the valleys, or shelter themselves behind some hill or mountain; and in summer encamp round some lake or pond, or along the bank of some river."

Father Gerbillon again speaks of the tents of these people in the year 1688.

"We found some tents of the Mongous, and met many of them driving small carts upon two wheels, which were very light, but apt to break; some of them were drawn by horses, and others by oxen. There was nothing near the tents of these Mongous but cows and horses, and as there is no wood in the country, their whole fuel is cow or horse dung dried in the sun. We encamped on the side of a rivulet, upon a small eminence, near three or four tents of the

Mongous. There appeared in the valley a considerable number of these tents, which looked like a village or hamlet. I had the curiosity to go to see one of them; and that I might be the better able to know how they were built, I went into it.

"It is a sort of cage, made of pretty small sticks, of a circular form, and of about thirteen or fourteen feet diameter: there are greater and smaller of them, but the chief part of those I saw were of this size: in the middle it is about eight or nine feet high.

"The roof of these tents begins at about four feet from the ground, and ends in a point like the top of a round-tower or pigeon-house. They are covered with different pieces of stuff made of wool, pressed but not wove (a species of felt-cloth). When they make a fire in the tent, they take away the piece of stuff over the place where the fire is to be lighted, which I observed in the tent I was in, where there was a fire. I saw upon this fire three or four pieces of I know not what flesh, the sight of which turned my stomach.

"The whole furniture was a wretched bed of three or four boards, with a piece of the same stuff with which their tents are covered, which serves them both for bed and coverlid; a bench, upon which sat two women, who had such

hideous faces that they frightened me; a sorry press, and a sort of wooden dishes.

"These Mongous live together upon milk and flesh of their cattle, which they eat almost raw. Money is not current with them, but they exchange their horses, cows, and sheep for linen, and for very coarse woollen cloth, which they make use of to cover their tents and beds. Both men and women are clothed as the Mantchow Tatars are, only not so well or neat: they wear no short garment under the long one. As they do not understand tillage, so they eat neither bread nor rice. I have been assured that they do not live long, and that there are but few old men to be seen among them.

"Their veneration for their lamas, or priests, is beyond all expression. These lamas are clothed in red and yellow; they are by much the ugliest persons that I ever saw. There are, at present, a great number of them at Pekin, where they flock every day, because they are well used by the emperor. Policy induces this prince to treat them kindly, because of the power they have over the Mongou Tatars. When they are at Pekin they quickly leave off their rags, and are easily brought to dress and feast."

As it may be interesting to be made acquainted with the component parts of a

Mongolian Tatar's dinner, I here give a description :—

"The feast consisted of two dishes of hashed meat very ill dressed, placed in a great dish, in which there was almost a whole sheep cut in several pieces for each of the ambassadors; and as for the rest one dish served for two, the meat half done, according to the Tatarian custom; this mutton was served up to the ambassadors in copper dishes, and to the rest in small troughs like those wherein hogs are fed in Europe; there was likewise rice, sour milk, and wretched soup, together with small slices of mutton, and Tatarian tea in great plenty.

"This was the substance of the feast which the Tatars, and particularly the Mongous, as likewise the mandarin's domestics, who were chiefly Chinese, fed upon with great appetites, without leaving anything; there were no tables, but mats laid on the sand under a tent; these mats served at the same time for table-cloth and napkins.

"Tea was served up, and brought in a great copper jug: there was likewise a sort of wine, which was so very bad that none but the Mongous durst venture to taste it."

THE KHALKAS.—This nation or tribe inhabit a tract of country situated between 45° and 50° N. latitude, and 106° to 126° E. longitude, south of the great Baikal lake. Their sovereign bears

the title of emperor, and has under him many other princes, who are but mere shepherds. Their country consists of large sandy and arid plains, and besides has some mountain districts. Hares, deer, partridges, and other game are to be found in these uncultivated plains.

"The tents of the Khalkas, although surrounded by flocks of cows, horses, sheep, and camels, are very miserable and wretched; they are much lower, also less and poorer, than those of the Mongous who live near China. These Khalkas are not so well made, and are more ugly, although they speak the same language as the Mongous. The children go naked, and the parents have nothing but wretched coats of cloth lined with wool; many have no other clothes than sheepskins, neither dressed nor curried, but only dried in the sun: although their children had their skin half burnt by the sun, the men seemed vigorous and active. Their women are modestly dressed, wearing a gown which reaches from their neck to their feet; their head-dress is ridiculous, being a bonnet somewhat like that the men wear; when one sees their hideous faces, and the ringlets of curled hair which fall down over their ears, one would take them for downright furies. They exchange their cattle for stuffs, salt, tobacco, and tea, but will not take money.

"The Khalka princes do not possess much better tents than their attendants, or rather slaves; even the tent belonging to a prince, and brother to the emperor of Khalka, was not very neat, and only a little larger than the others."

Their mode of life is here described: "In summer-time they subsist on nothing but milk and tea from China; also feed upon all sorts of milk, from that of cows and ewes, to mares' and camels'. In the winter-time, when the cattle did not yield a sufficient quantity of milk, they feed upon flesh half-boiled over a fire made of the dry dung of the same beasts; it being extremely cold in the depth of winter, they never go out of their tents, in the middle of which there is a great fire; as for their cattle, they let them feed at pleasure, and trouble their heads no further about them than to get their milk, or to make choice of some for the shambles, when they have occasion.

"These people do not seem to be very valiant; for the caravans of Moorish merchants who travel into China, when they pass through their country, pillage and carry them off with impunity, bringing them and their cattle to sell at Peking, where they carry on a great trade in this sort of merchandize."

Father Gerbillon states, that "after the Caf-

fres of the Cape of Good Hope, he had not seen a more dirty nation than these Tatars.

"Just at the outskirts of this town we fell in with the encampment of a Buraet family, where we had our first opportunity of gathering some particulars of the mode of life and habits of this remarkable race.

"Their dwelling consisted of two conical tents, upon a level plot of ground and enclosed with a wooden paling, to prevent the horses from straying. The rest of their cattle were, as usual, left to pasture upon the neighbouring steppe: there the cows, sheep, horses, and camels, which compose the possessions of the Buraets of Selenginsk, find a certain, though scanty, subsistence through the winter. Their tents, like those of the Samoyedes, were constructed with poles meeting together at top, and encompassing a circular space below. Their felt tent-clothes, which supplied the place of the Obdorsk deer-skins, were, like them, doubled; but the Buraets arrange their tent-poles at a much greater angle above than the Samoyedes.

"Their occupants, who came out courteously to meet us, exhibited the usual projection of the cheek-bones, with the oblique and elongated eye, jet-black hair, and teeth of unequalled whiteness. The Buraets are considered a holy race, as there was hardly a Buraet family of which

there was not one member at least in the priesthood. These priests are called 'Lamas,' and their chief, 'Khamba-Lama;' but the high-priest of all the Buraet priesthood is the Dalai Lama of Tibet.

"The inside of their tents displays a whimsical association of civilization and rudeness. The fire-place is nothing more than a hole dug in the middle of the apartment, with the felt mats and cushions on which they sleep, ranged round it.

"An object, which from religious associations seemed more deserving our attention, was a sort of altar which stood against the wall of the tent opposite the door. It was a kind of double chest, carefully finished, the lower portion of which was about four feet long, by about three high, and the same in breadth: while the upper, with the same length and height, was considerably less wide. The hinder sides of both were precisely in a line, so that the greater breadth of the lower chest left it to project beyond the other, and form a sort of table in front. Several drawers were contained in the lower chest, in which all the requisites for the performance of religious worship were deposited during journeys. A highly-coloured painting hung down upon the front of the upper compartment and concealed it entirely. It was a representation of 'Chigemune,' the principal Burkhan, or saint of the

Mongols, sitting as if engaged in prayer, with his legs drawn under him. Upon the table before this figure, six round bronze cups, of about an inch in diameter, were ranged at equal distances; they were filled with water, and a mirror, also round, and of the same metal, lay among them. This apparatus is used by the Lamas or priests for a purpose which is compared by the Russians to the consecration of water according to the Greek rite, but it is more probably a symbol of the transmission of spiritual endowments. The figure of the *Burkhan* is held opposite to the mirror, a stream of water being at the same time poured over it into the little dishes, which in this manner receive the image of the divinity along with the water.

"The Khamba-Lama informed M. Erman that the worship of Chigemune followed here is exactly like the Buddhism of India, but that it has no connexion whatever with the religion of Foh.

"He named, as an object of their worship, the mother of Chigemune, but also said that the Burkhans, whose images they set up in the temples, are like the saints in the Greek church, only teachers and instructive examples of men."

Father Gerbillon gives a description of a small encampment and tents of the Emperor of China,

during the time he is engaged on his annual hunting tour.

"There might be about a thousand or twelve hundred tents in this small camp, at the head of which, in the bottom of the passage or ravine, were placed His Majesty's tents, which were surrounded with three inclosures.

"The first was composed of the tents belonging to his guards, which formed a kind of wall; the second enclosure consisted of small cords fastened to stakes disposed lozenge-wise, not much unlike fishing-nets; the third and interior enclosure was made of hangings of coarse yellow cloth. This third enclosure was of a square form, and the length of each side was about fifty geometrical paces, and six or seven feet high; it had only one folding door, but the other enclosures had each of them three; one south, the second east, and the third west.

"Between the first and second enclosures were placed the kitchens and tents of His Majesty's inferior officers; between the second and the third there were only the tents of the more necessary officers, such as the officers of the guards, and gentlemen of the bed-chamber; in the middle of the third enclosure was placed the tent wherein the Emperor lodged; it was of the same form as the rest of the Tatarian tents,—that is, quite round, and like a wooden cage: it was

covered with Chinese stuffs of a coarse sort; the upper part was covered with a whitish cloth, and on the top appeared a kind of crown, embroidered with gold; this tent was somewhat handsomer and larger than the common sort; there were likewise several other tents for such of his children as bore him company in the journey. All the gates of the enclosures had their guards, distinct from the two sides of the enclosures which formed the palace; and within, on the north side, were placed the tents of the grandees of the court, and the officers of the crown, each according to his rank; they consisted in nothing but small pavilions, because they had left their great tents in the principal hunting camp."

From the researches Father Amiot has made into the ancient history of the Chinese Empire, he has discovered and copied several ancient manuscripts; one is entitled 'Lou-tao,' supposed to have been written by the Emperor Liu-vang, otherwise called Tai-Kong, who lived 1122 years before Christ.

All his copies are written in the Chinese language, and were in the Royal Library at Paris. The collection is entitled 'Vou-King,' or 'Livres classiques des Militaires.' The first is called 'Sun-tse-ping-fa,' or 'Règles de l'Art Militaire,' and is written by Sun-tse, or Sun-

vou; a highly prized commentary of this work, entitled 'Goei-vou, tchu-sun-tse,' was written by the Emperor Vou-ti (belonging to the dynasty of the "Goei"), about the year 424 of the Christian era.

The second manuscript was written during the reign of the Emperor Tai-tfong (of the "Tang" dynasty), who lived A.D. 912.

A third manuscript was written during the reign of the Emperor Van-li, who died in the year 1620; and the fourth manuscript was written during the reign of the Emperor Kang-hi, who died in the year 1722.

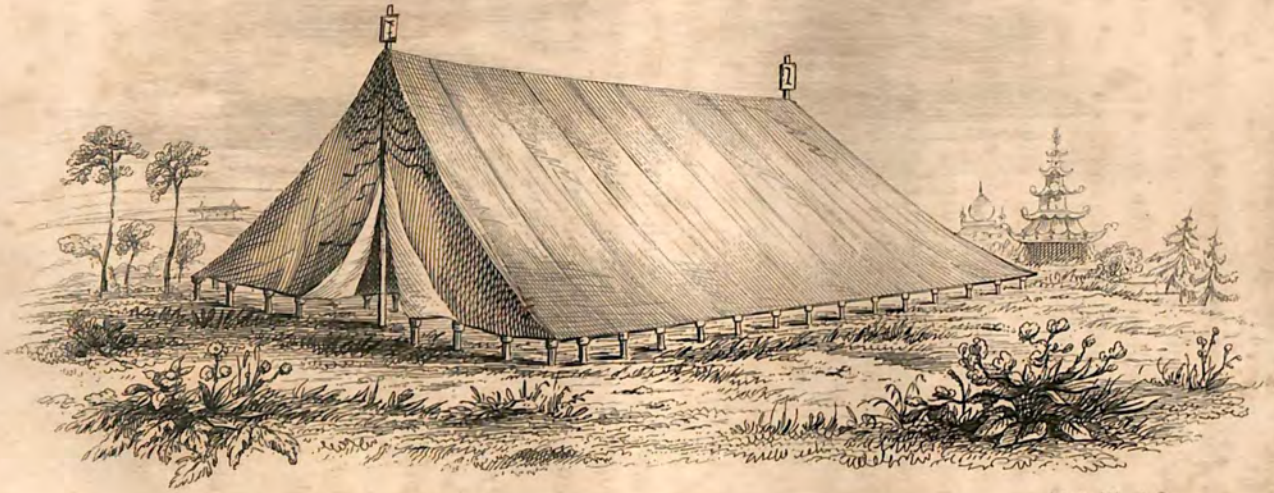
Thus military science was not neglected by the Chinese, even at the earliest period of their history. In the minute description of a military tent, as described by Father Amiot in his work, entitled 'L'Art Militaire des Chinois, 1772,' (being a summary of the Chinese manuscripts), he does not define the period during which the military tent I am about to describe was first used by the Chinese soldiers. If my reader will refer to my description of the tents used by the Mongou and Khalka Tatar tribes, also those used by the Chinese Emperor, his soldiers and attendants, during his annual hunting excursions in the wild regions north of the great wall, it will be perceived that at that period (1688) nothing but round and cage-like tents were then in use.

May it not then be inferred that this modern-shaped tent, which is nothing else but a marching tent, or tente-d'abri, is to be attributed to the period of the Emperor Kang-hi's reign, viz., between 1692, the date of Father Gerbillon's last travels, and 1722, the year in which that Emperor died?

CHINESE MILITARY TENT.—Each tent is only 5 feet 5 inches in height, by 14 feet long (about 6 feet in width), and thirty-nine feet six inches in circumference, outside measurement. The tent covering is supported by two vertical poles placed at each end, and connected together at the top by a ridge pole; this frame-work is divided into nine pieces, joined together by iron sockets; an iron pin or nail passes through each socket, and thus secures the pieces together.

The covering consists of strong linen canvas, to the extent of 105 square feet; this is supported by the wooden frame-work, and then stretched out to the form of a sloping roof, and by means of short ropes or rather loops, manufactured from the bark of trees (they being much stronger and more durable than hempen ropes), is pegged to the ground; at each of the four corners of the tent is attached to the canvas a large iron ring, which is secured to the ground by a large wooden peg: wooden pins are also

used for the other loops, and, including the four corner pegs, 80 pins are required for this sized tent. At each end of the tent is an entrance or doorway, formed of canvas; and as each end falls vertically to the ground, the door is formed by having the triangular ends cut through the centre from near the top of the tent to the ground; thus, when required to be opened, either one or both sides are turned back, and kept in that position by means of several short loops fastened to the outside of the doors, which are then hooked or buttoned to the inside lining of the tent; when closed, the canvas is secured to the ground by loops and wooden pegs. The method of constructing these triangular curtains is singular, from which it would appear that the canvas is much more valuable than the mere labour of sewing; thus, in lieu of making each side of one piece of canvas, seven narrow strips are required. The first is 7 feet in length; the second $6\frac{1}{2}$; the third 5 feet and 3 inches; the fourth 4 feet 2 inches; the fifth 3 feet; the sixth 18 inches; and the seventh only 2 inches in length. The whole tent is lined throughout with common blue linen. The utensils belonging to each tent consist of a felling axe, a spade, a shovel, a hammer, and a curiously contrived portable copper camp-kettle; each pole is ornamented by an imperial-shaped iron crown: the weight



Alfred Adlard Sc.

Chinese Soldiers Tent.

of the iron required for the tent, including the implements, is 17 lbs.; as to the cost of one of these tents complete, Father Amiot says, that the Chinese government pay seven taels, seven tsien, one seu, and five li, or 110 francs and seven sous.

TURKISH TENTS.

FROM *Knolles' History of the Turks* we gather the description that follows of the Turkish encampment and the tent of Sultan Mahomet IV. A.D. 1663.

The tents were raised on a small hill, as may be judged, about four miles distant from Constantinople (41° N. lat., 35° 28′ E. long.) They were about 2000 in number, ranged without order, only the Grand Seignor's seemed to be in the midst, and to overtop all the rest, and well worthy of observation, costing, as was reported, 180,000 dollars; richly embroidered in the inside with gold, and supported by pillars plated with gold. "Within the walls of this pavilion were numerous officers belonging to the seraglio. There were retirements and apartments for the pages, chiosks and places for pleasure; and although I could not get admittance to view the innermost chambers, yet,

by the outer and more common places of resort I could make a guess at the richness and greatness of the rest, being sumptuous beyond comparison of any in use among Christian princes.

"On the right hand there was pitched the Grand Vizier's tent, exceedingly rich and lofty; and had I not seen that of the Sultan before, I should have judged it to be the best that my eyes had seen: the ostentation and magnificence of this empire being evidenced in nothing more than in the richness of their pavilions; sumptuous beyond the fixed palaces of princes erected with marble and mortar."

"The Turks spare for nothing in rendering their tents convenient and magnificent. Those belonging to the Grand Seignor were exceedingly splendid, and covered entirely with silk; and one of them was lined with a rich silk stuff. On one side of the tent was an apartment for the eunuchs. But even this was exceeded by another, which we were informed cost 25,000 piastres; it was made in Persia, intended as a present to the sovereign of the Turks; and occupied four years in making. The outside of this tent was not indeed remarkable; but it was lined with a single piece made of camel's hair, and was beautifully decorated with festoons, and sentences in the Turkish language."—*Egmont and Heyman's Travels.*

ASIATIC TURKEY.

M. FONTANIER, who had resided many years in the East, and received the appointment of scientific traveller from the French Government, between the years 1826 and 1829, left Trebisond for Erzeroum (39° 58′ N. lat., 41° 36′ E. long.) in a caravan composed of all classes. At Erzeroum he remained a month, and then set off with an Arab muleteer who agreed to conduct him to Tauris (*Tabriz*—38° 10′ N. lat., 46° 37′ E. long.), and there provide means to continue his route. This was a regular caravan of mules upon a considerable scale; he joined it near a little village called Eldija, near which he found an enormous tent spread for the passengers, the merchandise arranged in bales around it, and the mules of burden, under the care of their respective drivers, pasturing in the vicinity.

"A Mahometan, the possessor of a hundred mules, is a very important personage; the chief of our caravan deported himself accordingly. He rode a splendid Arab horse, and was constantly followed by a servant; he carried in his hand a blunderbuss, and wore a beautiful sabre by his side. When the time to halt approached, he preceded the rest; as soon as he had found a

convenient place he dismounted, and his servant planted his lance on the spot; at this signal, the mules laden with the tents were hurried on before, so that the travellers, on their arrival, found the tents pitched, and a shelter from the heat of the sun while the coffee was prepared, which was presented to us morning and evening by the chief."

The profession of a muleteer in Turkey is one of the most honourable and independent. It is not surprising, when we consider it requires from those who exercise it extreme integrity and a great deal of intelligence. In those countries it would be easy for a conductor to seize upon the merchandise under his care, without much anxiety as to any inquiry that might be made; and no little intelligence is required to guide his caravan across territories frequently laid waste by war, without mischief, to govern so many servants, to avoid quarrelling and keep in order so many travellers of such various opinions. Joined to this, they are possessed of the authority of the police, and a right of inspection on the road. It is rare that they exercise it, but they never hesitate to interfere in the differences which arise in their camp, where they establish themselves as petty sovereigns, whatever may be the quality of the persons who may form part of it.

On the plains of Sunnur the caravan stopped a day, waiting for travellers among the Kurds. M. Fontanier did not neglect the opportunity of inquiring into the habits of these wanderers and their manners. A curious interview takes place between him and one of the nomades, and in the dialogue that ensues, the civilized and learned Frenchman does not appear to have the advantage.

"The day after our arrival I prepared to make the Kurds a visit, when one of them entered my tent, and without further ceremony examined scrupulously everything it contained. I begged him to retire. 'But why? the sun is hot, your tent serves for shade, and I shall stay in it.' However, the chief of the caravan, who knew that these visits were not always agreeable to me, relieved me of his presence by inviting him to take coffee. When I went to their encampment with some companions, it so happened that the first tent we entered was his. 'Oh, oh!' exclaimed he, 'here you are—you would have driven me away from your tent just now. Think you that I would do the same to you? It would be a disgrace to me—no, sit thee down, I shall give thee coffee and a pipe—and learn how much more estimable a character is a Kurd than a dog of a Christian, or a citizen with his smooth tongue!' I was

rather astonished at a compliment I expected so little, and I tried to make him understand that my European costume frequently exposed me to rudeness and importunity. 'In that case,' said he, 'why not stay at home? why come and walk about a Kurd camp, where no one in all their lives ever saw a European? It is curiosity that brings you here; why not indulge the same feeling in others?'"

A singular scene occurred on our travellers' return. Robbery, it would seem, is not only not disgraceful, but can only be committed in the dark by honourable thieves.

"During the night some horsemen had been prowling about the caravan, and had only retired on being threatened by Ali-Aga, the chief of the caravan, with being handcuffed and sent off to Cara-Hissa. They returned in the daytime, and we found them, to the number of six, sitting in the great tent. They were recounting there, with remarkable naïveté, that they had come in the night only to see if there was any opportunity of robbing; that they were inhabitants of the neighbouring villages, and employed in watching the roads. 'Nevertheless,' said Ali-Agra, 'if I caught you I should have taken you along with us.' 'Oh!' said they, 'that is not so easy; we were on horseback and should have fled!' 'Well, well! if I see

you again I shall discharge my musket among you.' 'That is not so easy either, for I have been about you these three days, and you have only seen us once.' 'And do you intend to come again to-night?' 'We do not think we shall.' 'Well, I tell you—I, Ali-Aga, chief of the caravan—I say I bear no ill will against you at this moment, because no one robs in the day-time; but I will keep a good watch, and with the aid of God I will make you eat powder.' 'O, then, it will not be worth while; besides you are going to encamp seven leagues off, and that is too great a distance.'"

MODERN TURKISH TENTS.

HAVING served as Honorary Aide-de-Camp to his Excellency General Prim, Comte de Reuss (who was chief of a scientific and military commission sent to Turkey by order of Her Most Catholic Majesty Isabella II., Queen of Spain), during the campaigns of 1853 and 1854 on the Danube, and living in Turkish tents with the imperial Ottoman army, then commanded by that ever-watchful and illustrious General, Omer Pacha, the description of Turkish tents as at

present used in that army, although but brief, is from personal knowledge.

The Turkish tents are of various forms, colours, and dimensions.

To commence with the Generalissimo's, or Omer Pacha's tent:—

His official grand tent is of very large dimensions, and, owing to its great weight, requiring several horses to carry it, is but seldom pitched. The tent is circular, having a very strong centre pole, which, for portability, is made in two lengths, and, when in use, joined by the upper portion fitting into a circular iron socket, as is now in general use in all modern tents.

The outside roof is made of a very stout cotton canvas, and of a light green colour. It is stretched out to a circular form by the means of long ropes pegged to the ground, making the tent to cover a space of 20 feet in diameter. Walls of the same material and colour are attached by hooks to the edge of the outside covering, and are in height about 4½ feet.

The inside roof is also made of the same material, and lined at the top part with a beautiful pale yellow silk. The inside walls are similarly made. The distance between the outside and inside linings is about two feet.

THE PACHA'S OR GENERAL'S TENT.—This

tent is of similar form to the Generalissimo's, but is on a smaller scale. It is about 18 feet in diameter, and the inside lining is generally made of a dark blue cotton, thus giving it a very sombre appearance.

MIRALABEY'S (COLONEL), OR KAÏMAKHAN'S (LIEUT.-COLONEL), TENT.—This is of like form, but much reduced in size (generally about 14 feet in diameter), to the Pacha's, and has not always an inside canvas lining.

THE SOLDIER'S (OR ASKIER'S) TENT.—This is in shape of a common round tent, but it is lower. Its diameter is about 13 feet. The pole is of one piece, and of a very light, but strong wood. Its top is crowned by a flat circular piece of wood, in the form of a small plate, bottom uppermost. The canvas, being therefore rather expanded at the top of the tent, materially increases its distance from the pole, and thus affords space for a larger volume of air than is to be obtained within an English tent of equal diameter. There is a canvas wall of about 15 inches high, from the top and bottom of which cords are attached at equal distances all round, and by these the tent is fastened to the ground. The covering is made of double widths of cotton canvas, sewn one over the other, so that these tents are very

strong, serviceable, and impervious to continuous heavy rains: they possess one great fault, which is, that they are rather too heavy for general purposes; nevertheless, I have always found them very snug, dry, secure, and comfortable, and as such the Turks prefer them.

THE SMALL HOSPITAL TENT.—It is of a long oval shape, supported by a pole at each end, having a ridge pole or rope connecting both together: long ropes fastened to the sides, at about 3 feet off the bottom, and then pegged to the ground, secure the tent. It is made of a doubled white cotton canvas.

THE COOKING TENT.—This is rather more of a canvas shed than a tent, as the front and back sides are generally quite open. It is of a dirty red-brick colour; and although not absolutely required, except in continual wet weather, nevertheless is indispensable to ensure the comfort and health of the troops. Dampness greatly tends to chill the human frame, so nothing should be neglected which might ensure to the soldier a ready and safe means of cooking a hot meal; and I am confident that nothing would prove to be more efficacious than by erecting a small cooking tent, to shelter the fire from the but too often drenching rain.

MALAY TENTS.

THE Benuas, the supposed aborigines of the Malay peninsula, are a wild people, who, wherever they are scattered, live totally apart from the Malays, who are followers of Mohammed, the Benuas still preserving their heathen mode of worship. Mr. Newbold describes this people, in his account of the British settlements in the Straits of Malacca, 1839; and he says, one tribe of them, the Semangs, are numerous in Quedah, and they reside generally on or near the mountains. They live in rude huts constructed of leaves and branches of trees, which are easily moved from place to place. A Malay MS., which Mr. Newbold quotes, and which is full of interesting details of these nomades, says:—"The huts are rude edifices, perched on the top of four high wooden poles; thus elevated from fear of tigers, and entered by means of a long ladder, presenting no very satisfactory appearance to the uninitiated, through certain holes which serve as doors. The roofs are thatched with chuco-leaves. The huts are so made as to be moveable, at a moment's warning, on the appearance of any contagious disorder among them."

HABITATIONS OF THE ANDAMANERS.

THE Andamans are a group of four islands and several islets in the Bay of Bengal, in 92° 30′ E. long., and occupying a space which extends from 10° to 13° N. lat. The inhabitants, from all accounts, are among the very lowest in the scale of civilization of any people with which we are acquainted. They show determined hostility to Europeans and repugnance to enter into communication with them. Their language, from the little that is known of them, is said to be wholly dissimilar to any spoken in other parts of the East. The people are of small stature, seldom exceeding five feet in height, and in colour, hair, and features they resemble the African negroes. They are entirely naked, they have no utensils for cooking, and therefore all that is done to their food is to throw it upon burning wood.

The dwellings of these people are rude in the extreme; they are formed by fixing four poles of wood into the ground, and binding their tops together, filling up the spaces between them with branches of trees, and leaving a vacancy on one side just large enough for ingress and egress.

Several attempts have been made by English vessels to establish an intercourse, but on every occasion were abandoned.

AFRICA.

Abyssinian Encampment — Tents of Arabs in Upper Egypt — On the Lower Nile — Cairo Tent — Wandering Tribes in Tripoli and their Tents — Nomade Moors on the Senegal and Niger — People of Central Africa and their Tents — Arabs in Morocco and Fez — People of Upper Egypt and their Dwellings — Moveable Huts of the Hottentots.

AFRICA.

THE Desert of Sahara, and the southern limits that border on Soudan, swarm with innumerable tribes, of whom the greatest number are included under the general name of Moors. They are of a mixed race, and lead a wandering life; and, although they are not decidedly Arabs, they have adopted the religion of Mohammed. But it is the opinion of Ritter and others that there is good reason for considering these tribes, and those who are included under the name of Abyssinians, as descendants from the wide spread Arabic family. The Arab, which sometimes has mingled with the negro and other races, now occupies a very large part of the countries north of Abyssinia as far as the Mediterranean. The Arabic is the only character that is now used in Africa by those who read and write.

Parkyn's 'Life in Abyssinia' affords us this description of an Abyssinian permanent camp of Prince Oúbi, at Howzayn in the kingdom of Tigre, which is the northern portion of Abys-

sinia (Abyssinia ranges from 8° to 15° N. latitude, and from 35° to 43° E. longitude) :—

"The appearance of an Abyssinian permanent camp is singular but by no means unpleasing. The diversity of tents, some well shaped, some square, some like an English marquee, some white, and others made of the black woollen stuff made principally in the southern provinces of Tigre; huts of all sizes and colours, and their inmates scattered about in groups, with horses, mules, &c., form altogether a picturesque and lively scene.

"The troops in Abyssinia are for the most part collected from among the worst of the people, who prefer idleness in peace, and plundering their neighbours in war, to the more honest but less exciting occupation of agriculture. They have neither tactics nor discipline, and their dress is the ordinary costume of the country, but usually cut in a somewhat smarter manner."

ARAB TENTS IN AFRICA.

THE tents of the Bedouins who inhabit the desert on the east bank of the Nile near Siout and Tahta, about 27° N. latitude and 31° E. longi-

tude, of Upper Egypt, consist of four sticks set in the ground, about a yard in height, to which is fastened one of their shawls as a cover, with another behind so as to form a kind of shelter from the sun, wind, or dew. They generally pitch their camp near a fertile spot, but always at the foot of the desert, so that in case of surprise they are soon in their native country.

In Denon's great work, executed under the command of Napoleon and published in 1802, there is an engraving of a scene at the fountain of the "Kitoh," on the desert between Zénéh and Sassëir, in which are represented several French and Egyptian tents (the latter belonging to camp-followers or such like) of that period.

The French tents are circular, having a stout pole in the centre which protrudes out of the top about two feet. They are wide, spreading out at the base, and then pegged to the ground, having no side walls. The covering is of canvas.

The native tents consist of two descriptions:—I. A large and long angular tent, sloped like the roof of a house, supported by two long vertical poles, one at each end, having a ridge pole connecting both together; the canvas or cloth is thrown over the whole and pegged to the ground; the tent is open at both ends.—II. Is a very low Arab tent in every respect similar to that described at page 101.

We gather from Dr. R. W. Stewart ('The Tent and the Khan') a description of a tent he purchased at Cairo in January, 1854. "The size and price of a tent are reckoned by the number of strings or cords in it; a cord being fastened between each width of canvas. A tent of twelve strings, or ropes rather, is sufficiently large to accommodate two persons comfortably, indeed with a little management it may serve for three. For 3*l.* 5*s.* I bought a good second-hand twelve-string tent, gay with variegated colours of blue, red, and yellow. Anticipating heavy rains in the desert, my friends had the top of my tent lined with waxed cloth, a precaution which ought never to be neglected by those who enter the desert before February, and but for which foresight I should have passed many a night drenched to the skin." Thus these tents are by no means waterproof. "A folding-table, a couple of camp-stools, a Turkish rug to sit or lie upon, a bit of matting for the floor, a couple of gimlets, fastened into the tent poles, to serve as pegs or hooks, and a wind or storm rope for attaching outside to the top of the pole to keep the tent from being blown over, complete the furniture. A small bell tent for the servants costs 17*s.*; when pitched its canvas does not reach the ground, all round, by about two feet; it is therefore cool enough."

In the country of Tripoli, between 29° and 34° N. latitude, and 11° and 25° E. longitude, there are two kinds of Arabs—one wanderers, and the other fixed residents in the small towns and villages. Many of those who live in the villages also travel about the country, but always return to what they consider their home. The wanderers have no permanent place of abode, but remove their tents as pasturage or circumstances require. Their tents are made of woollen cloth, coarsely woven in long pieces and sewn together. The tents spread in great breadth, but are not high, the entrance being about six feet, and the top sloping gradually down till it is fastened to the ground. These tents are called "hair houses." There are large tracts in the desert which are partially covered with grass and bushes, and afford pasture for sheep, goats, and camels, but it frequently happens they are far from any well. Captain Lyon observes that not only Arabs and their camels, but all animals in the desert, have the power of remaining a great length of time without water; sheep, provided they have tolerable herbage, will pass even a month without drinking. These wandering Arabs cultivate small tracts with barley or dhurra: the fields are usually at a great distance from the places to which they go with their flocks, but they are

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respected by other wanderers, and the corn is rarely stolen. A great article of commerce is furnished by the fat of the sheep; it is boiled until it bears some resemblance to the grease used by tallow-chandlers, and when poured into skins is fit for use; it is put into almost every article of food by the Arabs; being also extensively used in Tripoli and other towns. From the wool of their sheep the women make strong barracans, carpets, shirts, and turbans. Their tents are also made of wool and goat's hair, and also the sacks which are used for the carrying of corn and merchandise on their camels. Mats and ornaments of palm leaves and grass are neatly made. Their dyes are generally brilliant—black, blue, red, and orange —in fact every colour except green, which they feel much difficulty in producing.

The Arabs are divided into numerous tribes; each tribe, or even a set of tents, is governed by a sheikh. Nearly all the tribes have been brought into complete subjection.

This part of Africa enjoys a fine climate. August is the hottest month, when the hardy Arab, although inured to the climate, is obliged to retire with his animals from labour for two or three hours in the middle of the day to seek the shade.

M. Pacho, a native of Nice, whose Travels in

this country afford the best information we have of it, says that the valley which runs along the mountains that form the boundary of Egypt is an hour in breadth. As the waters which flow down the declivity in winter give birth to a luxuriant vegetation, it is covered at all seasons with numerous Arab encampments.

This country was the Cyrenaica of the Greeks, by whom it was considered a sort of terrestrial paradise. The foundation of the city of Cyrene dates as far back as about B. C. 628, when, according to Herodotus, a colony of Greeks under Battus were conducted by the Libyan nomades to this delightful spot, then called Irasa. The country has been overrun in various ages from the fifth century; the work of destruction was finally completed by the Saracens; and for seven centuries this once populous region has been lost to civilization, to commerce, and even to geographical knowledge. For three parts of the year, Cyrene is untenanted, except by hyænas and jackals; and during the fourth the pastoral Bedouins, too indolent to ascend the higher range of hills, pitch their tents chiefly on the low ground to the southward of the summit, once crowned with the polite and voluptuous metropolis, "the City of the Golden Throne." "But," remarks M. Pacho, "if the labours of man have been annihilated, nature remains the same."

Throughout the great continent of Africa there are numerous tribes of nomades. The Braknas are a Moorish people established to the north of the Senegal, and it is by them the traffic in gum is carried on. They are a very abstemious people, and encourage the breeding of cows for the milk, which is a great article of diet; and we are told by a traveller, that as beauty among the females of these Moors consists in extreme *embonpoint*, young girls are forced to drink milk to excess. Their huts or tents are constructed of straw, and slaves are employed by them for procuring the straw (or high grass most probably): the huts are said to be sufficiently large to hold forty or fifty persons. Without the city of Timbuctoo, Caillie says, there are many straw huts; round, like those of the Foulah shepherds. The whirlwinds in the deserts, carrying with them columns of sand, not unfrequently overwhelm tents and everything within their reach.

Of another of these nomade tribes of Moors on the Niger or Quorra, we are told: "The tents are round, in the form of a cone, and are made of goats' or camels' hair, which is impenetrable to the rain. Each tent is supported by a pole in the middle, and fixed all round with thongs of ox skin, fastened to the stakes, about a foot from the ground. Inside are several

rows of mats, one end of which is secured to the tents, and the other by the moveables. These people pack up their tents in leather sacks, the leather very neatly dressed; they are thus kept dry when travelling."

CENTRAL AFRICA.

Mr. Henry Barth (1850–55) accompanied an expedition sent to explore the north central part of Africa, by, or under the auspices of, the British Government, and purchased at Tripoli a single-poled circular tent for his private use. This tent, built after the Turkish manner, was strong, spacious, and low, and perhaps rather weighty for a long journey. He states, that "the three tents provided by the British Government were quite unfit for the country whither they were going; they were so light that they could hardly withstand a strong blast of wind, and scarcely excluded the sun's rays, particularly after a little wear and tear: the tents had not been provided with top-ropes, so were quite unable to stand the effects of a tornado, so common in those climates."

To supply these defects another Tripolitan

tent was purchased by Mr. Richardson, the chief of the mission; and although the English tents were taken, they appear to have been used but occasionally, at such times when the camp was stationary for a few days.

In the neighbourhood of Múrzuk (14° N. latitude, 26° E. longitude), and at the half-decayed and deserted village, O'm el hammán, which was built of clay, the inhabitants were living in circular-formed tents or temporary dwellings made of palm-branches. Our travellers reached the country of the Tagáma, situated from 15° to 17° N. latitude and 8° to 9° E. longitude.

They are a nomadic tribe, at present only mustering about 300 spears, and ride on a small ill-looking breed of horses which are swift. Their chief occupation is hunting and cattle breeding.

Mr. Barth says: "The Tagáma were said by some of our informants to have come from Jánet; but I was not able to confirm this piece of information. However, I am sure that they belong to a stock settled in these regions long before the Kél-owí. We find them settled on the borders of Negroland in very ancient times. Horneman, from what he heard about them, believed them to be Christians. Their temporary dwellings are simple: built of mats

(stuore) erected upon stalks (frashe), and covered with hides over a layer of branches. This district abounds with lions, which often carry off their camels."

The province called "Sennaar" is situated in Upper Egypt between Nubia and Abyssinia, from 12° and 18° N. lat., and 33° to 40° E. long., bordering on the western coast of the Red Sea. The districts of Taka, Basa, Beni-Amer, and Bellad-Sudan, are comprised within this province.

From Ferdinand Werne's 'African Wanderings, during the years 1839 and 1840,' we gather the following statement:—

"The Schukurie and Habbabee Arabs, on the left bank of the river Nile, and on the White River (White Nile), are held to be the most numerous, powerful, as well as the most rich in herds, of all the tribes of Bellad-Sudan, and are only equalled in those points by the Beni-Amer tribe, that extends up to the Abyssinian frontiers. The Haddenda Arabs also dwell next to the Schukurie tribe, but continued feuds take place between them, on account of mutual robberies. The Egyptian government demand from these tribes an annual tribute, but as their mode of traffic is only by barter (money not existing amongst them), and adding thereto their erratic life, there is much difficulty in collecting it."

The Bellad-Sudan district abounds with game of every description, from the elephant and lion to the timid hare. The ground is generally very fertile, producing grain, cotton, and numerous other vegetable productions. Their tents or temporary dwellings are both light and portable, and as a similarity exists throughout these districts, a description of one will be sufficient.

"The tent is circular and of a brickkiln-like shape, called 'Birsch;' tents of canvas, 'Gemma;' and those constructed on boats 'Denda.' They are constructed of the boughs of trees, and covered with palm-mats made from the Dom-palms;* high behind, but so low in front that you have to stoop much to enter them; their general width is about 12 feet. The interior arrangement is very simple; at the back part is a sort of elevated bed-place or divan, called an "angareb," raised from one to two feet from the ground; constructed of short stakes driven into the earth; covered with palm-mats, and over these a kind of reed-stalks, split fine, and bound by small stripes of hide.

"This elevation, when used as a bed or seat, is protected from cold wind and curiosity by being hung round by black and white striped

* Also called "Kábba."

coarse woollen coverlets; this part of the tent is called the 'Beit,' or house."

In the time of the tropical rains these tents are much reduced in size by their inmates, who then sit in them like snails in their shells.

A "murhaka" (two stones to grind grain with) and earthen pot are all the moveables, as these, with a girbe (leathern water-bucket), are all that is required for Arab housekeeping; so that, without any great preparation or loss, they can desert the birsch, and proceed on their constant wanderings.

On account of numerous wild beasts, the natives are obliged to place a circular hedge of thorn-bushes (called a seriba) round their tents, leaving open but a single entrance, which is closed at night: fires are either lighted or made ready to light at a moment's notice, to scare away these animals, but especially the lions, which appear to be numerous. During the summer months, many of the tribes only construct their tents of branches, and cover them over with fresh green durra straw, which is cooler than the palm-mat tents.

Part of this province abounds with wood; there is a large "chaaba," or forest, extending from the right bank of the river Atbara to the Red Sea, and upwards to Abesch. It is the abode of unnumbered elephants, of rhinoceroses,

lions—generally without manes—tigers, hyænas, giraffes, gazelles, large antelopes, wild asses, wolves, cats, &c., and immense numbers of most venomous snakes: from fear of these no Arab will at night move outside his "seriba."

The tent occupied by Mr. Werne was of Egyptian build; circular, with a centre pole; double canvas; still the sunbeams pierced so glowingly through it, that he was obliged to lay coverlets over the outside of the tent, on the side that the sun was, to obtain some relief.

Tents that have been painted over with some colouring are much cooler, from having their pores thus filled, than those of white linen or canvas. During storms, accompanied with heavy rain, the double canvas was not even impervious to rain, as our traveller was frequently wet through.

MOROCCO.

THE Berbers, a nomade tribe, occupy exclusively the mountain region which extends along the Mediterranean in the kingdom of Morocco. (Morocco ranges from 27° to 36° N. lat., and from 1° to 11° E. long.) They are nearly

white, of middle size, well formed, and rather robust and athletic; their hair is frequently fair, resembling that of the northern people of Europe rather than any nation of Africa, and they have little hair on their chins. They live generally under tents or in caves, situated on steep and nearly inaccessible mountains. Their chief occupation is that of huntsman or herdsman. The general name of the Berbers, who were the original inhabitants of North Africa, is now applied to the people of the whole Atlas range. Some who reside in the valleys build huts of wood and mud, which they thatch with straw. The nomads have great flocks of sheep, and also mules and donkeys. To guard their flocks they keep numerous dogs, which are so unaccustomed to allow any stranger to approach the habitation they are set to guard, that the robbers, so frequent in this country, are restrained by fear of being eaten by them. Even Berbers, if they belonged to another camp, would not dare to approach without precaution that where they are not known; but if any business call them there, this is the method they employ to escape the rage of these merciless guardians: the stranger comes up slowly, and goes round the tents at a certain distance; the dogs bark, but, on account of the distance, do not attack; as soon as the owners

appear, he mentions what brings him, and they are eager to satisfy him; if it be hospitality he requires, a mat is spread for him at a little distance from the tents, and supper is given him, but no one is allowed admission to a tent.

The Arabs live in tents which they call *chaima*, because they are a protection both from sun and rain. They are manufactured either from coarse wool or goat's-hair, or from the fibres of a root called lift-adum, which the women spin or twist, and weave so close that it can keep off the rain. Some are erected by means of three principal poles, which are placed in the ground, besides six short ones at the four corners and the sides; others have only two principal poles, and four at the corners, which are seldom above 8 or 10 feet high. Instead of a door they lift part of the tent up; they tie it on the outside here and there with a cord; and thus the whole building is complete. The tent covering is dyed black with copperas.—*Höst, Account of Morocco and Fez.*

The Arabs are the descendants of those who emigrated at the time when Mohammedanism was diffused from the Hejaz, Yemen, and Hadramaut. They are dispersed over the plains, where they adhere to their wandering life, and follow pastoral occupations. They are a hardy race, slightly made, and under the middle size.

Their language is the Koreish or Arabic of the Koran.

"The encampments of the Arabs in Morocco consist of broad tents, constructed either of the leaves of the palmetto, or of camel's-hair. Some of them are supported by canes, others are fixed by pegs. The form of an Arab tent is in some degree similar to a tomb, or the keel of a ship reversed. Their hair coverings are dyed black; they are broad, and very low. The tents are closed on the north side, and are quite open on the south, by which means they escape the cold north winds, so prevalent in this country during the winter season."—*Lemprière's Tour*, 1789.

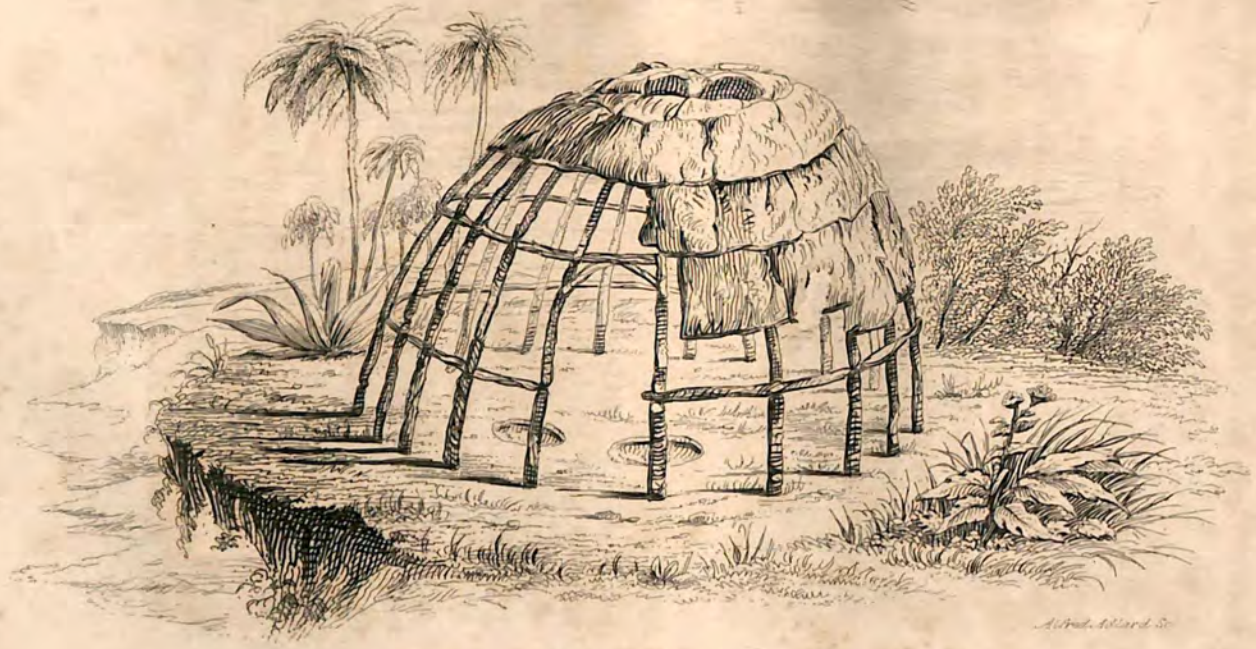
MOVEABLE HUTS OF THE HOTTENTOTS.

THE country of the Hottentots ranges from 14° to 32° E. long.; the Cape of Good Hope is 34° S. lat.

The Koranna Hottentots are one of the few tribes of Africa that have retained their independence. They wear the old sheepskin dress, and preserve the original customs of their nation which were described by Kolben a hundred years ago, but which the Hottentots in the

Cape Colony have long since abandoned. They live in kraals; their huts are constructed of mats stretched over a frame of sticks in the shape of a bee-hive, and are easily removed on their pack-oxen as they migrate from place to place. They lead an indolent, wandering life, living chiefly on the milk of their cattle, and seldom roaming far from the banks of the Gariep and its tributary branches.

Kolben's account of the nomadic South Africans informs us that their huts, which are portable, are in shape like ovens, but perhaps more oval. They are constructed by bending several thin poles or laths of wood to the above form; in the larger huts the top ends of the laths are bound together, whilst the bottom ends are made to enter the ground (the laths of the smaller huts have no joint at the top, being of one piece). A series of these arched laths are placed at equal distances from each other, with their ends fixed into the ground; horizontal laths are then placed on the outside, at equal distances, and bound to the arched laths; this frame-work, when finished, resembles a cage, covered by square openings. The entrance is in the shape of a doorway, having an arched top; it is generally 3 feet in height by 2 feet wide, so that the Hottentots have to creep in on their hands and knees.



Hottentot's Tent.

After the frame is completed, closely-made mats, manufactured by the women out of reeds and sword-grass, are placed over the whole; each mat is about 18 inches square, and being fastened to the horizontal laths, commencing at the bottom one, are regularly lapped, or, more correctly speaking, placed on, in the same manner as tiles are on the roof of a house; by this method neither wind nor rain can penetrate, as the mats are not only firmly fastened to each other, but are in their manufacture very closely matted.

It will appear, from the sketch I give of one of these huts, that a few heavy stones are placed on the top, thus acting as a security weight (in lieu of a rope), and by bending the laths has the effect of forcing their ground ends further into the earth.

Besides this usual matted roof, the richer Hottentots often use another covering made of skins, which is thrown over the mats and secured to the bottom of the hut. The door is made of a skin, or dried hide, in the shape of a curtain fastened to the inside at the top part of the door-way, and either rolled up or let down as circumstances require.

When their encampment at one spot is for a longer period than usual, a second entrance is made at the opposite side of the hut. The

usual diameter of the largest huts is about 14 feet, whereas that of the smallest rarely exceeds 10 feet; each family has a separate hut, made according to its number, which rarely exceeds ten or twelve persons of all ages; their spare laths, bows, arrows, and other implements not required for daily use, are hung or attached to the laths inside the hut. A circular hole of about 12 inches deep is made in the centre of each hut, and serves as their general fireplace (the largest huts have sometimes two holes), but as the smoke has no other mode of exit than by the doorway, it is impossible that any European, unaccustomed to live in this manner, can remain long within a Hottentot's hut when a fire is burning.

AMERICA.

THE ESQUIMAUX — THE NORTH AMERICAN INDIANS AND THEIR WIGWAMS — INDIAN HUTS OF SOUTH AMERICA.

AMERICA.

TENTS OF THE ESQUIMAUX.

The Esquimaux inhabit the most northern part of the continent of America, and if the extent of country be considered, are one of the most widely-spread nations on the globe, ranging as they do over the entire circle of the western hemisphere. Inhabiting the most sterile regions of the earth, on which the only vegetable growth are lichens and moss, and winter reigns throughout the year, their only occupation is catching fish for food. Their language differs from all other people. Houses there are none, and in the higher latitudes they have not such comfortable residences as we shall describe, but the walls of their habitations are blocks of ice.

This quaint description we gather from Martin Frobisher (A.D. 1577).

"The Esquimaux tents are made of seal skins pitched up with four fir quarters, four-square, meeting at the top, and the skin sewed together with sinews or thongs, and laid thereon; they

are so pitched up that the entrance into them is always south. They have other habitations or tents, which we found to be untenanted, which are raised with stones and whalebones, and a skin laid over them to withstand the rain or snow, the entrance of them being not much unlike an oven's mouth; these places are thought to be for occasional resort for fishing or hunting, and so leave them until they require to return to them again."

These people must be more inland to be able to obtain fir poles; the description that follows is the construction of tents among the more northerly residents.

"Their tents are made two fathoms underground, in compass round like an oven. From the ground upwards they build with whalebones for lack of timber, which, bending one over another, are handsomely compacted in the top together, and are covered over with seal skins, which fence them from the rain. In this house or tent is only one room, having one-half the floor raised with broad stones a foot higher than the other half, whereon, strewing moss, they make their nests and sleep in."

The summer tents of the Esquimaux are thus represented in Captain Parry's 'Voyage of Discovery,' in July, 1822:—

"Their tents, which varied in size according to

the number of occupants, consisted of several seal and walrus skins; the former dressed without the hair, and the latter with the thick outer coat taken off, and then shaved thin so as to allow of the transmission of light through it.

"They were put together in a clumsy and irregular patchwork, forming a sort of bag of a shape rather oval than round, and supported near the middle by a rude tent-pole, composed of several deer's horns or the bones of other animals lashed together. At the upper end of this is attached another short piece of bone at right angles, for the purpose of extending the skins a little at the top, which is generally from six to seven feet from the ground.

"The lower part of the tent-pole rests on a large stone to keep it from sinking into the ground, and, being no way secured, is frequently knocked down by persons accidentally coming against it, and is again replaced on the stone.

"The lower borders of the skin are held down by stones laid on them outside, so as to keep the whole fabric in an erect position; a line of thong is extended from the top, on the side where the entrance is, to a larger stone placed at some distance.

"The door consists merely of two flaps, contrived so as to overlap one another, and to

be secured by a stone laid upon them at the bottom. The entrance faces the south or south-east.

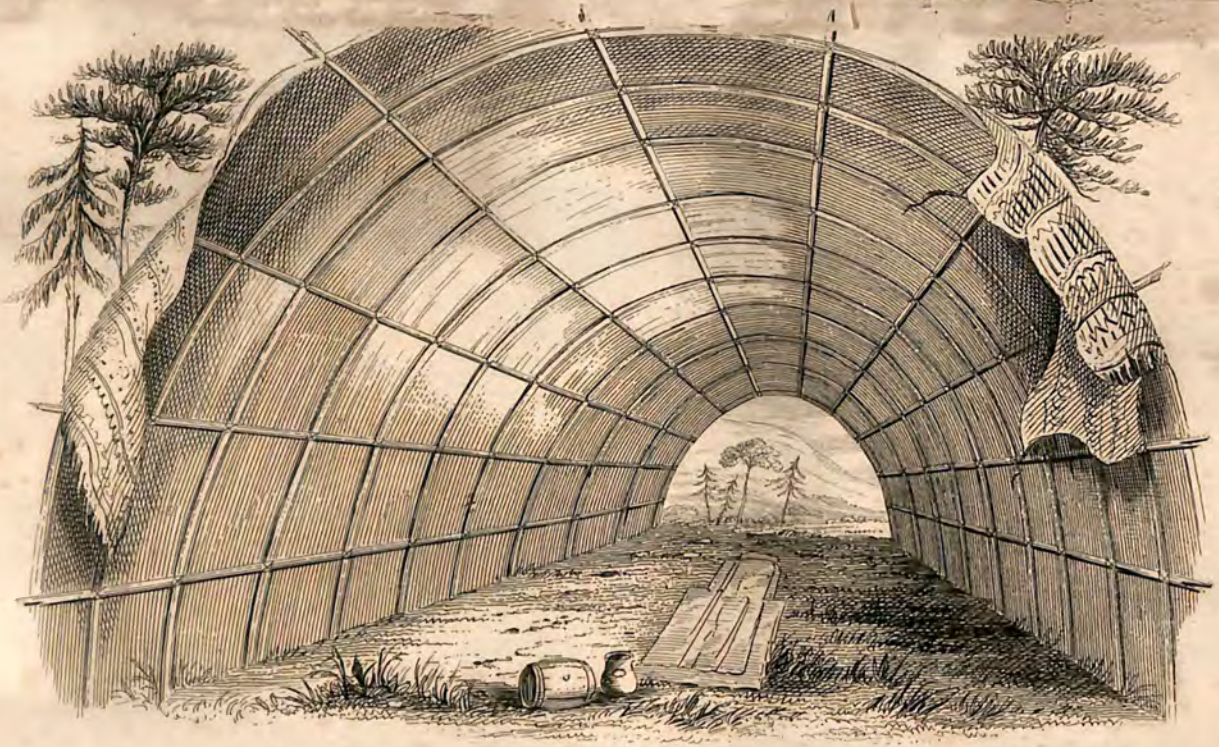
"When a larger habitation than usual is required, they contrive by putting two of these tents together to form a sort of double tent, somewhat resembling a marquee supported by two poles."

Near Fort Good Hope, on the Mackenzie river, in 67° N. lat., Lieutenant Hooper in 1848 found a deserted Indian lodge, which was constructed of logs and pine-brush and roofed with bark. It was in a dense forest, principally of pine-trees.

THE NORTH AMERICAN INDIANS.

In Schoolcraft's History of these tribes is a description of an arched lodge or bower, which the Winnebagoes (46° N. lat., 90° W. long.) made, therein to celebrate "the Medicine Feast."

"When one or more persons make application to join the society, preparations are made for a feast, which is held in an "arched lodge" or bower, constructed of poles and covered with tent-cloth and other materials. The size of the



Medicine Tent of the Winnebagoes.

bower is made to conform to the number of persons to be invited, and this number depends much on the ability of the person who makes the feast. The width is about 16 feet, the length varying from 30 to 225 feet. The members of the society sit on each side the bower, the centre being reserved for dancing."

In the same work we have represented the wigwam of other Indian tribes.

The wigwams of the Pawnees who inhabit the bank of the Red River (41° N. lat., 100° W. long.), where there are between 500 and 600 wigwams, are all made of long prairie grass, thatched over poles which are fastened in the ground, and bent in at the top, giving them the appearance of straw beehives.

The wigwams of the Red Indians are of different kinds: some are extremely simple, being formed of high sticks or poles, covered with turf or the bark of trees; while others are very handsome.

The Sioux (46° N. lat., 93° W. long.), the Assinneboins, the Black Feet, and the Crows, form their wigwams nearly in the same manner; that is, by sewing together the skins of buffaloes, after properly dressing them, and making them into the form of a tent; this covering is then supported by poles. The tent has a hole at the top, to let out the smoke and admit the light.

The Navajoe lodge is an exceedingly rude structure, and is usually built of pine or cedar sticks, which are covered with flat stones or earth. It is in the form of a cone, seldom exceeding five feet in height, and has a triangular opening in front. The fire is made in front of the lodge. The Navajoes are nomadic in their habits, often changing their place of residence, frequently sheltering themselves in caves or fissures of the rocks. They have no permanent residences.

The wigwams of the Mandans (41 N. lat., 101 W. long.) are round. A circular foundation is dug about two feet deep, timbers six feet high are set up round it, and on these are placed other long timbers, slanting inwards, and fastened together in the middle, tent fashion, leaving space for light and smoke to pass.

This tent-like roof is supported by beams and upright posts, and it is covered over outwardly by willow boughs and a thick coating of earth; then comes the last covering of hard tough clay: the sun bakes this, and long use makes it solid.

The outside of a Mandan lodge is almost as much used as the inside; for there the people sit, stand, walk, and take the air. These lodges are from 40 to 60 feet wide. The Mandan lodge is the best of all the Indian wigwams.

Navajo Wigwams.

Some of the wigwams of the Crow Indians, covered as they are with skins dressed almost white, and ornamented with paint, porcupine quills, and scalp-locks, are very beautiful.

The Crow and Sioux Indians carry their wigwams in this manner: the poles are dragged along by horses or dogs, the smaller ends being fastened over their shoulders, while on the larger ends, dragging along on the ground, are placed the lodge coverings, rolled up together; the dogs pull along two poles each with a load, while the horses are taxed according to their strength.

Hundreds of horses and dogs, thus dragging their burdens, may be seen slowly moving over the prairies with attendant Indians on horseback, and women and girls on foot heavily laden.

The Dacotas are a numerous tribe, who always make their tents of buffalo-skin, for there is a tradition, that one of their ancestors made his of deer's skin and died soon afterwards. When a buffalo is killed, the women take off the hair of the skin with a knife; the skin is wetted and stretched on poles.

The banks of the Mississippi are covered by tribes of Indians, who always encamp near a river, and where large trees are found to shelter their tents. Any other convenience is not much

consulted by the men, for they have only to eat, lounge, and talk, when at home; any occupation beyond fighting, hunting, and fishing, they consider beneath their dignity. All labour is performed by the woman, who not only dresses the buffalo-skin, but sews it together and carries the tent when they are on the march; and when the tents are to be pitched, it is by women the stakes are driven into the ground and the buffalo-skins thrown over.

SOUTH AMERICA.

In Humboldt's Researches, when in the Cordilleras of the Andes (S. lat. 4° 36′, W. long. 5° 12′), speaking of Indian huts, we learn:—Several hundred leaves of the Vijao plant, of the family of bananas, are collected in the mountains. These leaves, which are membraneous and silky, are of an oval form, 20 inches long and 14 inches wide. Their lower surface is a silvery white, and covered with a farinaceous substance: this peculiar covering or varnish enables them to resist the rain during a long time. In gathering these leaves an incision is made in the middle rib, which is the continuation of the foot-stalk,

and this serves as a hook to suspend them when the moveable roof is formed. On taking the hut down, they are spread out and carefully rolled up in a cylindrical bundle. It required about a hundredweight of leaves to cover a hut large enough to hold six or eight persons.

The mode of construction is this: a few branches of the trees are lopped off, with which are formed the framework: in a few minutes this slight timber erection is divided into squares by the stalks of some climbing plant or threads of the agave, placed in parallel lines three or four decimeters from each other.

The vijao leaves, meanwhile, have been unrolled, and are now spread over the above work, so as to lap over each other like the tiles of a house.

These huts, thus hastily built, are cool and commodious. If, during the night, the traveller feels that the rain enters, he points out the spot, and a single leaf is sufficient to obviate the inconvenience.

Andes is the general name given to the great range of mountains which runs along the western side of the continent of South America. In the language of the Sircas these mountains are called *Antis*, as they abound in copper and other metals: the word *anta*, in the Peruvian, signifies copper. These mountains are called by the

Spaniards Cordilleras de los Andes, or the chains of the Andes, whence the word Cordilleras is sometimes alone applied to them.

As the valleys of this mountain region alone are habitable, we do not think it necessary to touch on the elevations even of the table-lands which surround the summits, covered with perpetual snow, as these table-lands are elevated from 8000 to 10,000 feet above the level of the ocean. Humboldt says:—"Among the majestic and varied scenes which the Cordilleras present, the valleys produce the most striking effect upon the imagination of the European traveller." These valleys are so wild as to fill the mind with fear and admiration: they are formed by vast rents, clothed with a vigorous vegetation, and of such a depth that Vesuvius might be placed in them without overtopping the nearest heights.

M. Humboldt passed several days in the Valley of Bosquia under one of these leaf tents, which remained perfectly dry amidst violent and incessant rains.

The Pehuenche Indians form one of the tribes inhabiting the cultivated lands immediately to the south of the province of Buenos Ayres (35° S. lat., 60° W. long.). Sir Woodbine Parish, who was the British Chargé-d'affaires, describes these people as a fine race of men, being taller

and stouter than the other Indians who inhabit the plains. Both sexes paint their bodies; the women wear a vast quantity of gold and silver ornaments; the ear-rings are said to be as big as an English padlock.

Their habitations consist of tents made of hides sewn together, which are easily set up and moved from place to place. Their principal food is horse-flesh; but Poeppig says they also eat a nut which is twice the size of the almond. They have laws and punishments for crimes. As to their religion, they believe in a God, the Creator and Ruler of all things, and they also believe in the influence of an evil spirit.

Mr. Proctor, who was in the country in 1824, describes the sheds or huts provided for travellers as most wretched. In one of the passes amid the mountains, near the silver-mines of Upsallata, he says:—"We took up our position on one side of a large square red fragment of rock, one of the numerous masses which had fallen from above. Placing the beds with their heads against the rock, we formed a sloping roof from it by a large blanket supported on poles, and we thus erected a tolerable screen against the penetrating cold air. We carried a large tent with us; but the ground was hard and stony, and to pitch it required so much time that it was perfectly useless." Fuel here is extremely scarce;

there are but a few miserable shrubs, but they, being of resinous woods, burn tolerably well. In this stony and barren, inhospitable region, the only habitations which are to be here and there found are miserable huts formed of branches of trees or shrubs, plastered over with mud.

SOUTH ATLANTIC ISLANDS

AND

AUSTRALASIA.

TIERRA DEL FUEGO AND ABORIGINES OF NORTH AUSTRALIA.

\\\

ISLANDS OF THE SOUTH ATLANTIC OCEAN.

TIERRA DEL FUEGO.

TIERRA DEL FUEGO is the name by which the Archipelago is designated which constitutes the southern extremity of America.* It is supposed the Spaniards bestowed this name in consequence of seeing volcanic eruptions, and Captain Basil Hall distinctly says he really saw one. Tierra del Fuego consists of one large island, four others of moderate extent, and a great number of smaller islands and rocks. The surface of the whole is about equal to Great Britain. The climate is extremely cold: the snow-line in North Britain is at an elevation of 5000 feet, in these lands it is at 3000, and it appears that no season is quite free from frost.

The natives are low in stature, few being over 5 feet in height.

* Lying between 52° 30′ S. lat., and between 65° and 76° W. long.

The Fuegian wigwam is probably one of the most wretched of this kind of structure. A few green boughs of trees is all that the Fuegian can find to construct the habitation which is to protect him from the cold, wet, and boisterous climate of Tierra del Fuego.

It is of a circular form, generally not larger than will afford room for a family of five or six persons, who squat themselves round a fire in the middle in listless apathy. This miserable habitation boasts not the meanest or most common utensils, and the bare ground forms its floor. Here they sit, with occasionally a seal-skin covering thrown over their shoulders, and sometimes an apron of some animal's skin tied round their middle.

The Fuegian men are an indolent race of beings: they cultivate no ground, and take little or no exercise, and subsist principally by fishing.—(*Captain Foster's Voyage*, pub. 1834.)

Fuegian Wigwam.

AUSTRALIA.

On this portion of the globe we have but little information regarding the habitations of the aborigines.

In the narrative of the voyage of H. M. S. "Rattlesnake" during the years 1846 to 1850, edited by John Macgillivray, are notes by Mr. Carron, the botanist of the party, of the result of an exploring expedition in the barque "Tam o'Shanter," containing Mr. Kennedy and twelve companions, which left Sydney, and, after a voyage of twenty days, reached Rockingham Bay (18° S. lat., 147° E. long.). Here they disembarked, and began their land journey for the exploration of Cape York Peninsula (11° S. lat., 142° E. long.). They were detained by inclement weather, but, in the early part of June, proceeded and came upon a native encampment, consisting of eighteen or twenty huts of an oval form, about 17 feet long and 14 feet high. All of them were neatly and strongly built, with small saplings stuck in the ground, arched over and tied together at the top with small shoots of the climbing palm. They were covered with the bark of the large *melaleuca*, which grows in

the swamps, fastened to the saplings with palm-shoots. A narrow opening is left at one end, from the ground to the top: the floors were covered with long dried grass.

These huts are, by another traveller, described as of a bee-hive shape. The bark of the *melaleuca* is a soft cottony substance, which strips off the tree in large flakes. The entrance to the hut is made on the side sheltered from the prevailing winds; here they kindle their fire, towards which they stretch their feet when they lie down.

With regard to the settlers, the statement that follows is somewhat astounding. We extract it from the *Melbourne Argus*, February 15, 1858:—

"The nomadic character of our population is shown by the fact disclosed in the census returns, viz., that, of a population of 410,000, no less than 135,000 were living in tents. The wretched accommodation for the people is also hown by the class of dwellings:—

"Brick and stone	12,612
Wood and iron	42,574
Canvas	45,161
Not stated	1,634
	101,981

"Of these 36,080 had 1 room.
27,922 had 2 rooms.
19,909 had 3 and 4 rooms.
5,074 had 5 or 6 rooms.
3,568 had over 6 rooms."

EUROPEAN TENTS.

ABORIGINES AND SAXON — CAMP OF EDWARD II. — RICHARD II., &c., FROM FROISSART — HENRY VIII.'S TENT — TENTS OF THE EIGHTEENTH AND NINETEENTH CENTURIES — BRITISH ARMY TENTS OF PRESENT DAY — LAPLAND — FRENCH: ANCIENT AND MODERN MILITARY — AUSTRIAN: OLD AND NEW — PRUSSIAN — SWEDISH — SARDINIAN — ENGLISH TENTS RECENTLY INTRODUCED — THE AUTHOR'S TENTS: SPECIFICATION OF HIS PATENT, AND METHODS OF PITCHING, STRIKING, AND PACKING THEM.

EUROPEAN TENTS.

BRITISH TENTS.

THE Britons had tents which they were enabled to fold up, so that we must conclude they were made of skins. The Anglo-Saxons used tents for civil as well as military purposes. Strutt says that their tents were only lines, stretched from the top of a long pole, and fastened to wooden hooks driven into the ground. They are supposed to have been covered with a thick and strong cloth or leather on the top, a roof or guard sloping either way, like the ridge of a house, to shoot off the rain: some of them had a door, but others were entered by pulling the covering aside.

In Grose's 'Military Antiquities' we find that Lord Orrery observes, that "in ancient times they used tents instead of hutts, for the way of making war was in the field, and armies were daily in motion; and in such cases, straw, rushes, or stakes to cover, and wood to make stakes, were not always at hand, nor to frame the roofs easie; but now that for the most part

war is made in the besieging of strong places, or in standing camps, both officers and soldiers use hutts.

"The ancient mode of encamping was undoubtedly under tents, which were in use from the most remote antiquity: the camp of King Edward II. in his expedition to Scotland, A.D. 1301, is described in the ancient French poem entitled 'The Siege of Caerleverok;' from it we have a general idea of an ancient camp.

"And the army (says the poem) being drawn up, and the Mareschal having marked out the ground, and assigned to every one his proportion, then might be seen to arise houses of various fashion, built without the assistance of carpenters or masons, and composed of white and dyed linen; there many a cord was stretched, and many a pin driven into the earth, and many a large tree felled to build huts, whose floors within were strewed with leaves, herbs, and flowers gathered in the woods."*—(*Grose's Military Antiquities.*)

Froissart informs us that when Richard II. met the French King to confirm his marriage with the young Isabel, there were erected three rich and splendid pavilions, one for the King of

* From this it appears that barracks or huts were then used as well as tents. The same was done at Sebastopol.

England, one for the French King, and the third, which was in the middle, for them both to meet and confer in. We also learn from the same authority, that at the tournament held at Inglevere, near Calais, Sir John Holland, half-brother to King Richard II., and many English knights, went over to Calais to accept the challenge of the French knights at this tournament. Three rich vermilion-coloured tents were pitched near to the lists, and in front of which were suspended two targets, for peace or war, emblazoned with the arms of each lord. These are the tents having turret or garret-shaped windows, protruding all round from all the roofs of the tents.

During the time the Christians besieged a town in Africa (Froissart does not mention its name), they encamped outside; here the tents, which are delineated in the 'Illustrations from Ancient Paintings,' by Mr. Humphreys, are the same as those described hereafter. The tents are of all colours, but a few of them have no ornamental coloured or fancy work over the ring or round hoop from which the outside cords are attached. In Mr. Humphreys' Illustrations, Plate xiv. represents a magnificent rich pavilion of all colours; in shape like that of Plate xxvi. Other richly-decorated round tents are shown in the same picture. The Chronicler

tells us that the Sultan Bajazet indulged in an imaginary scheme of universal empire; with this view, in 1396, he threatened the kingdom of Hungary with invasion. Sigismund King of Hungary applied to Charles VI. of France for assistance, and many knights of France and other countries, with a considerable force, went to Buda, under the command of John of Burgundy, then 22 years of age—son of the Duke Philip—to attack Bajazet, having the ultimate prospect of gaining the Holy Land. Soon after the arrival of the French force Sigismund held a council of war, in which were present all the principal lords of France and the most influential Hungarian nobles. This is the council represented in the Illustration.

The Illustration xxvi. is described as "Edward III. before Rheims," and in it are represented four beautifully-decorated tents, three of them being lofty tents, circular and bell-shaped, having a circular ring round the tent, and at about two-thirds of the height from the ground; from this outside ropes are attached and pegged to the ground all round. The King's tent is coloured crimson, and is in the form of a hospital tent of the present day, but the walls are about twice the height, and consequently it has only a short sloping roof. After seven weeks King Edward raised the siege and went to Troyes and other

places in Champagne. In 1420, when King Henry V. met the King of France (Charles VI.) to conclude the peace and settle his marriage with Catherine, the French King's daughter, there were erected three pavilions, and Hall the chronicler says:—"The Frenchmen ditched, trenched, and paled their lodgings for fear of after-clappes; but the Englishmen had their part only barred and parted: the King of England had a large tent of blewe velvet and green, richly embroidered, and the tent was replenished, and decked with this poysie,—

'After busie laboure, cometh victorious reste;'

and on the top and height of the same was set a greate eagle of golde, whose eyes were of such orient diamonds as that they glistered and shone over the whole field."

"The Frenche Kyng likewise had in his parke a fair pavilion of blewe velvet richly embroidered with flower-de-luce. Between these two camps or enclosures was appoynted a tent of purple velvet for the counsailers to mete in."

All authorities concur in stating that the English tents in the fourteenth century were of different forms and colours; the royal tents were very large and splendid. Andrews says, "Henry VIII. had in his wars with France, instead of a tent, a timber house with an iron chimney, and

several pavilions, on the top of which stood the King's beasts, viz., the lion, dragon, antelope, greyhound, and dun-cow."

Among the drawings in the British Museum, are representations of tents used by King Henry VIII., A.D. 1513.

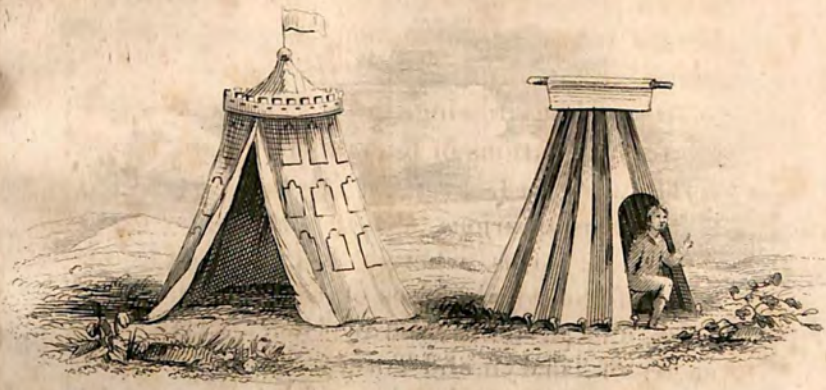
There is a curious MS. in the library of the College of Arms, wherein is given the dimensions of the royal houses of timber, royal hales, tents, and pavilions used by Henry VIII., at the sieges of Terwyn and Torney.

Henry VIII. had a beautiful tent called the "Royal Encampment Tent," formed by joining twelve of the present-shaped large hospital tents, connecting them together by covered canvas passages, half the height of the hospital tents, and at right angles.

A MS. in the Harleian Collection, marked No. 7364, contains the ancient method or system of castrametation, wherein every particular then in use seems to have been noticed. The date is about 1513.

In Francis Grose's work, one of the plates shows what are designated modern tents (1788); they are the present hospital tents. Another plate shows a tent that has perpendicular ends, and it appears to have three poles instead of two.

In the Harleian collection is a MS. on vellum, date 1500, in which are represented several



Anglo Saxon Tents. A.D. 1016.

English Tents. A.D. 1750.

tents, bell-shaped and of hospital-tent shapes; they are coloured green, red, and white. The larger tents have a sort of garret window at the top for ventilation.

An ancient MS. of the time of Richard III. or Henry VII., which gives an account of the camp-equipage necessary for a baron or knight, seems to show the enormous quantity of baggage and number of servants, of various denominations, with which our armies were encumbered. Thus the "chappelin" has his "vestyments, masse booke, store of wax candell," &c. There are "long gownes of silk, furred and lined, beds, tables, &c., and basyns to wash in." The cook has his "spett, grydyron, dyshes, and a ladyll," as well as "divers spices as almunds." The only habitations are, a "pavylion for yourself, a hale for your horses, and a hale for your servantes."

Rushworth has preserved an account of the established pay for the army raised by Charles I. against the Scotch in 1619, and we there find that to each train was appointed one tent-maker, with 2*s.* 8*d.* per diem, and two servants at 1*s.* each, a tent-keeper 1*s.* 6*d.*, and an assistant at 8*d.* per diem: the quarter-master receiving only 4*s.*

Strutt tells us that Henry VIII. had superb tents, and used them at the meeting he had with Francis I. in the valley of Ardenn, June 7, 1520. King Henry's tent (several joined) was made

of rich crimson, embroidered and wrought with ornaments of gold and crimson silk; above the fringe is a narrow compartment like a moulding, which runs all round the tent, on which is written in letters of gold :—

"DEO : ET : MON : DROET.
SEMPER : VIVAT : IN CÆTERUS," ETC. ETC.

James, in his 'Military Dictionary' (1816), remarks:—"It will appear that the sizes of officers' tents were different, as each regiment had its peculiar-sized tent. The private soldier's tent was 6¼ feet square, and 5 feet high; they held five soldiers each. The new tents will hold sixteen men in the common infantry tents, the length of the ridge-pole of which is 7 feet, length of standards (poles) 6 feet. The weight when complete is 27 lbs.

"Bell tents—so called from their resemblance to a bell—serve to shelter the fire-arms from rain.

"The round tent, or circular tent, will hold twelve men; the length of the pole is 9 feet. The weight complete is 43 lbs.

"The hospital tent is a large commodious tent for the sick."

No dimensions or mode of construction are given.

The late Dr. Robert Jackson, who was In-

Alfred Allard Sc.

British Tent.

18th Century.

spector-General of Army Hospitals in 1845, in his work, among other remarks worthy of much reflection, recommends painted canvas for the ground inside the tent, being both cheaper and more healthy than straw,—as no exhalation from the ground can go through it, and the health of the troops is thus more secured. He also recommends a tent with a light roof; but in explanation says, "such is practicable, but the application of it is attended with trouble."

British Army Modern Tents.—The tents now in use in general in the British army are the hospital and circular or round tents: the description of them being obtained from official sources may be relied upon.

The *hospital marquee*, which is, as to its form and general construction, exactly similar to that mentioned at page 144; the inside measurement covers a space of ground in length 29 feet and in breadth 14½ feet, and as it is understood to afford accommodation for not less than eighteen or more than twenty-four men, it would, in the latter case, permit 2 feet 5 inches by 6 feet 6 inches for each soldier, allowing 18 inches for the passage down the centre of the tent.

The height of the tent inside, or length of each tent-pole, is 13 feet 8 inches. The length

of the ridge pole (complete) 13 feet 10 inches. The height of the tent-walls from the ground is 5 feet 4 inches.

The weight of each article composing the tent, is as follows:—

	lbs.	
Weight of the eight canvas walls	123	
Weight of outside roof	108	
Weight of inside roof	92	
Weight of valise	10	
Weight of vases and weather lines	8	
Total (packed together in the valise)		341
Weight of both poles and ridge pole	112	
Weight of 4 large pins, 180 small pins, and 2 mallets in a bag	54	
		166
Total		507

A vulcanized waterproof sheeting has lately been provided for these tents, for the purpose of laying on the ground. There are four pieces to each tent, weighing, collectively, 145 lbs.

We have therefore a total weight of 652 lbs. The 507 lbs. is divided into three portions for carriage, therefore making each package equal to 169 lbs.

Of the circular single-poled tents there are two kinds:—

The first is the new cotton circular tent.

The second is the new-pattern linen circular tent.

As these tents vary but little, in the dimension and weight of their several parts, I will, in the first place, mention those which are similar, and 2nd, those that differ :—

The diameter of each tent is 12 feet six inches.
Weight of each tent (complete), 68 lbs., when dry, including one pole, 1 peg-bag, containing 50 pins and 2 mallets, and 2 storm ropes.
Weight of 50 pins and 2 mallets, in a valise, 18 lbs.
The length of pole of cotton tent, 9 feet 9 inches.
The length of pole of linen tent, 10 feet 4 inches.
Number of men capable of lying down on the ground within the tent, 16.
Ventilators to cotton tent, 3.
Number of long ropes and loops for each tent, 20 ropes and 20 loops.

Each tent is provided with a vertical circular wall; that of the cotton tent is 2 feet 6 inches in height, and that of the linen tent is 1 foot.

The object of these short vertical walls, is to give increased head room, near the inner bottom sides of the tent; thus, to be more explicit, I will state, that supposing a person was sitting on an officer's barrack or other ordinary chair, head upright, and not touching the canvas of the tent with his head, he would find that the ground ends of the back chair legs will be, in the cotton tent, at $1\frac{1}{2}$ feet, and in the linen tent, at 3 feet distance from the bottom inner edge of the tent wall.

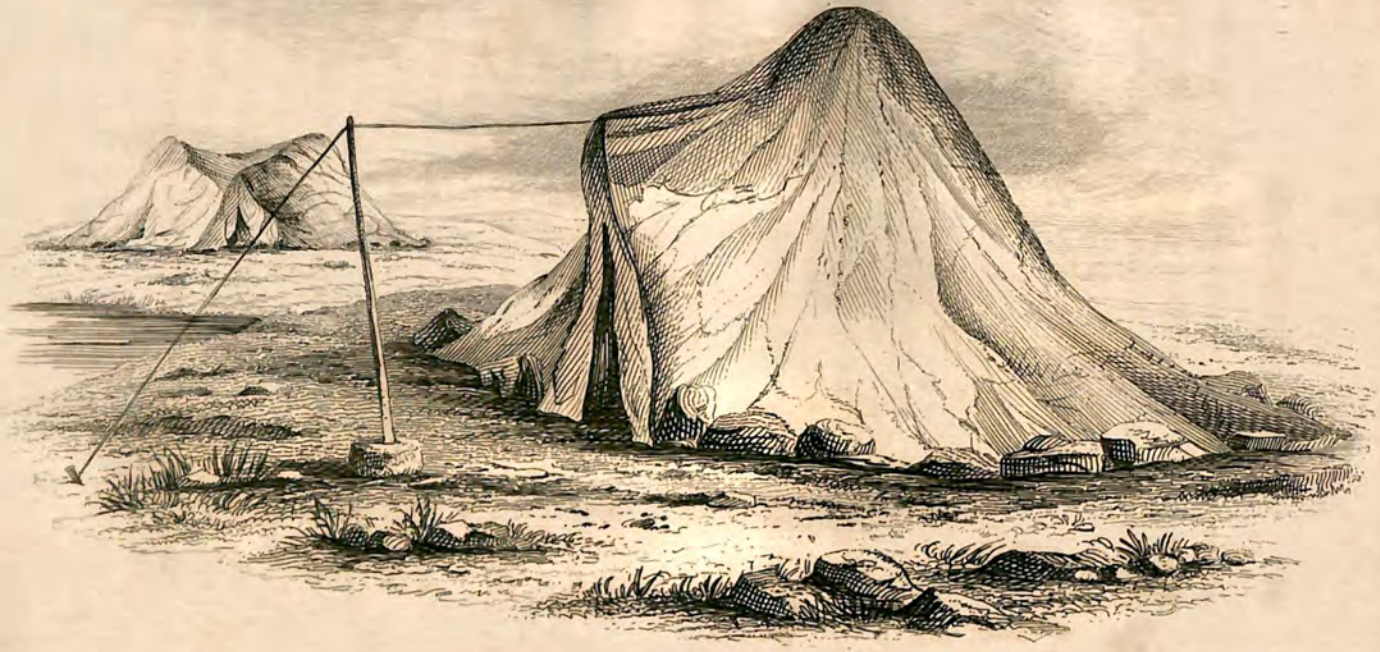
All troops sent out to India since the com-

mencement of the Sepoy rebellion, have been supplied with the circular linen tents.

It is proper to notice, that the government tents vary considerably in weight.

NORTHERN EUROPE.

THE country of the Laplanders comprehends the northern and north-eastern part of the Scandinavian peninsula; it is divided between Norway, Sweden, and Russia, and the settlers from these countries are much more numerous than the original Laps. It ranges from 63° to 70° N. lat. and from 15° to 35° E. long. Four nations inhabit Lapland besides the Laplander:—Swedes, Norwegians, Finlanders, and Russians. The original inhabitants have been driven by foreign settlers from the best part of the country, and occupy at present only the more sterile inland parts beyond the polar circle, but they visit with their rein-deer all the highest portions of the Kiölen range as far south as 63° N. lat., where rein-deer moss is found. Their number does not exceed 7000, and they are divided into Rein-deer Laplanders and Fishing Laplanders. The former live entirely on the produce of



Laplander's Summer Tents

their herds, which, in summer, they conduct to the more elevated parts of the mountains; they pass the winter in the level country which is settled by other nations; some of them possess as many as 1000 head of rein-deer. The Fishing Laplanders are most numerous in the Russian territory, and are dispersed along the lakes and banks of rivers, where they live on the produce of their fisheries. Forests cover a considerable part of the country; and the soil which is overgrown by these forests is covered by the moss on which the rein-deer feed.

The Fieldt or Mountain Laplander's hut, which is called a "Gamme," is built of stakes united together in the middle in the form of a cone, and several other cross stakes hold the uprights together below. Over this frame there is nothing spread but a piece of coarse linen, generally sail-cloth, in such a manner, however, that a quadrangular opening at the top remains uncovered, for the smoke to issue out of. A great part of this covering also lies loose on the ground, and serves to protect their milk and other household concerns against wind and weather, and to cover over their stores generally; and then these articles and the covering over them altogether form a sort of mound which prevents the entrance and draught of the extreme air into the "gamme" from beneath.

Another large and loose piece of sail-cloth is drawn round this outward covering on the side from whence the wind blows; this side is therefore always protected with a double covering.

Leopold Von Buch, from whom we derive this description of a Lapland tent, says, "We had scarcely set our feet out of the door of the 'gamme' in the morning, when, in less than half-an-hour, our house was entirely removed and the rein-deer laden with its materials, and all the utensils were in motion to a new place of destination."

FRENCH TENTS.

THE 'Chronicle' of Froissart, who was a native of Valenciennes, and engaged in the capacity of secretary at the courts of both England and France at the close of the 14th century, furnishes the best information on the military events, and on tents at the period. This has been already quoted under the head "British Tents." The account which follows relates to a portion of the country, which at that period was not included in the kingdom of France.

In 'Histoires des Ducs de Bourgogne,' during

Mountain Laplander's Tent.

the reign of Philip-le-Hardi, A.D. 1393, it is stated:—"It will be seen that at the meeting of ambassadors to endeavour to make peace amongst the Christian powers, the Duke of Burgundy raised and lived in a magnificent tent. The conference took place at a small and dilapidated village, half destroyed during the wars, called Lelinghen. This village is situated on the borders of the counties of Ponthieu and Boulogne, and was ceded to the English by the treaty of Bretigny. A chapel, thatched with straw, was appointed for the chamber of conference. The deputies of the two kingdoms pitched their tents at each side of the chapel, so as to be near the conference-room; thus the Duke of Burgundy had another occasion to display all his magnificence.

"His superb tent was made of planks of wood, and covered by painted canvas: its form was that of a castle flanked by towers. His suite was lodged in tents, which were pitched in lines and separated by streets, so that the numerous tents required to accommodate his 3000 followers had more the appearance of a town than of a camp."

In the same work, during the reign of Charles le Téméraire, we have a description of a tent or pavilion of costly magnificence:—"The Dukes of Burgundy have at all times been

most lavish in the regal and costly splendour of their courts, and invariably carried their luxurious habits even to the camp-field of battle; thus, in the event of a sudden reverse of the fortunes of war, and the capture of their camp, what a rich booty would fall into the hands of the enemy!"

I will here briefly describe the tents of the Duke of Burgundy, which, on the 2nd of March, 1476, fell into the hands of the Swiss soldiers, after the battle of Granson, in the Pays de Vaud.

"The duke's pavilion was grand and magnificent, and, as was usual in those days, was supported by vertical tent-poles. The exterior part was of coloured canvas; the interior was lined throughout with a rich red velvet cloth, and curtains of rich silk; the whole embroidered with leaves of gold, interspersed with clusters of magnificent pearls. The framework of the windows was composed of rods of pure gold. The throne on which the duke sat, when giving audience to foreign ambassadors and on other great occasions, was of solid gold: the rest of the furniture was also extremely costly. The ground was covered with rich carpets from the town of Arras. Over the entrance was placed an escutcheon of the duke's arms, set in diamonds, pearls, and the most costly precious

stones. Even the numerous ropes by which the tent was stretched were also interlaced throughout with golden cords; so that the duke's pavilion was of the most costly that art and money could then obtain."

Four hundred magnificent tents, belonging to the nobles and attendants at his court, were pitched around. Mention is made of the numerous objects of art and other costly ornaments, set with pearls and precious stones, which also fell into the victors' hands, and some of which were of priceless value.

The French infantry tents of 1753, and those for the cavalry of 1755-6, are thus briefly described in the 'Encyclopédie Méthodique,' art. 'Militaire,' tom. iii. p. 737 :—"They are single-poled tents, of single canvas, and are capable of accommodating from six to eight men. The subaltern officers' tents are larger than those for the soldiers; those of the superior officers are of the pavilion shape, with a square base of 6 or 8 feet. A ridge-pole is fixed horizontally on the top of two vertical poles, which latter are from 6 to 8 feet in length; a canvas roof is then thrown over, stretched out by ropes, and then pegged to the ground in the usual manner. Four curtains or walls complete the canvas of the inside lining of the tent: over this is placed another strong canvas roof, which, on being stretched out, over-

laps the inside lining by 5 or 6 feet; a wall is sometimes attached to it, leaving an opening at one end for the entrance. A tent so constructed is called a marquee. The rain easily penetrates the single canvas tents of the soldiers and inferior officers, which, falling inside, is termed *tamiser*, or sifting; but the double roof of the marquee effectually keeps out the wet during all rains, save those of a tropical nature. The double roof renders the marquee much cooler than the other tents, which are almost unbearable during the summer months."

We may remark that the Prussian cavalry tents are somewhat similarly constructed.

FRENCH MILITARY TENTS OF THE PRESENT TIME.

By order of H. I. M. the Emperor Napoleon, and by favour of Le Maréchal Vaillant, Ministre de la Guerre, and le Baron d'Arricou, l'Intendant-Général de la Guerre, four tents were pitched for my inspection on the 12th of March, 1858, with full permission to publish a description of them.

The four tents were specimens of all now in general use; they are—1, *Tente d'Abri*; 2, *Tente*

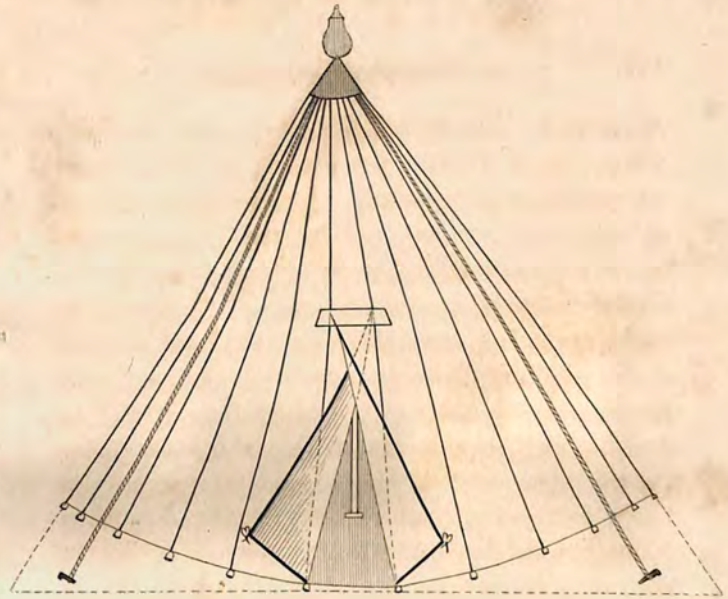
de Troupe, called also *Tente Faconet*, for sixteen men; 3, *Tente Conique*, or *Tente Godillot*, for twenty men; 4, *Tente Conique à Muraille*, for twenty men.

The *Tente d'Abri*, or "tent of cover," consists of a series of pieces of hempen canvas, having buttons sewn on along one side at about 8 inches off the edge, and button-holes made close to the same edge, at the same end of the canvas; at the other two corners of the sheet is fastened a short loop of rope, which is used to secure the canvas to the pegs when the tent is pitched. The size of each sheet is 5 feet 8 inches by 5 feet 3 inches. As this tent is intended to serve as a temporary bivouac-cover for troops on the march, a portion is allotted to be carried by each soldier. This portion consists of one hempen canvas sheet, three small wooden pegs, and one round stick 4 feet 4 inches long by 1½ inch in diameter; the total weight is 3½ lbs. This tent is generally constructed by joining either three or six portions together; one portion affording cover to one soldier. The method of construction is by overlapping the sides of two sheets, and then buttoning them together; thus, when the tent is pitched, a row of buttons appears on the outside near its top, and another row of buttons on the inside, but as the two sides overlap, this latter row is on the opposite inside slope of the tent.

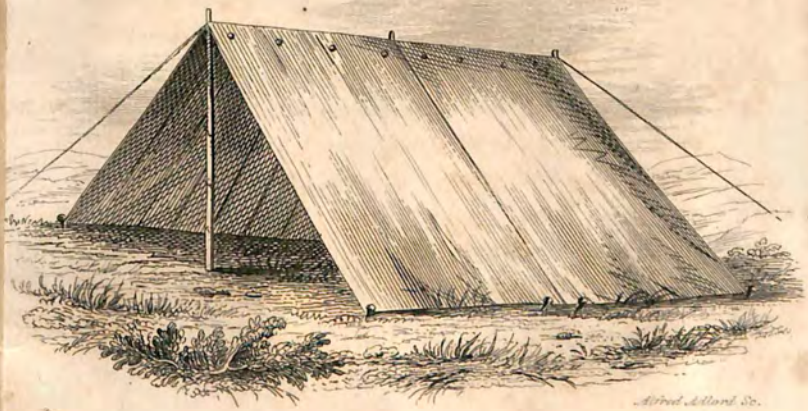
A stick or short pole, as above described, supports the canvas at each end; the two sheets, now buttoned together, are stretched out, and by means of the two small loops of rope attached to each corner are pegged to the ground. To further strengthen the tent, a rope is secured to the top of each pole, stretched out, and pegged to the ground. This triangular-shaped tent (for three soldiers) stands 4 feet high, by 7½ feet in width. To close up one of the triangular openings a third canvas sheet is used, consequently a third pole is not requisite, and can be dispensed with, but the three extra pegs are useful in case of loss or breakage. One end is open.

In constructing a *Tente d'Abri* for six men, four sheets of canvas are used for the tent-covering, the two remaining close the triangular openings at each end; a third pole supports the canvas in the middle, consequently no more than three poles and ten pegs are actually requisite to pitch a six-sheet tent, having the ends closed up; but if the six sheets are used for the covering (leaving both ends open) four poles and fourteen pegs are requisite, leaving two poles and four pegs to spare.

No. 2, *Tente-de Troupe, for sixteen men.*—The shape of this tent is of an oblong wedge form, having the edge uppermost and ends rounded. It is 14 feet wide, by 19½ feet long, inside mea-



Swedish Tent



French Tente d'Abri.

surement. Two 10-feet unjointed poles support the canvas, having a connecting ridge-pole, 6 feet 8 inches long, placed on the top end of each: the poles are 3 inches thick, having four flat sides. The canvas is fastened to the ground by means of short rope loops and twenty-three wooden pegs. There are two openings to this tent, formed by a portion of the centre part of canvas being cut open and then stretched out horizontally: two small circular poles, 5½ feet long by 2 inches in diameter, support this curtain. From the top of each pole is secured a rope, which, being stretched out and pegged to the ground, keeps them upright. These openings can be closed at pleasure, and are fastened by means of thirty-two straps and buckles, sixteen at each side. Inside, and between the poles, and at six feet off the ground, is placed a plank of wood, to serve as a shelf, on which the block-tin camp-kettles and any other articles are placed. This shelf is perforated by sixteen string loops, through which a 2-inch wooden button is slipped, thus forming a circular band about 4 inches in diameter. Each soldier has one, to which he hangs his accoutrements or great coat. On the side of one of the poles are hung up a spade, shovel, and pick-axe; these three iron implements are not packed up with the tent, but are issued when required. The

weight of the hempen canvas is 33¾ kilogrammes, or 67½ lbs.; the weight of the tent, complete, when dry, is 65¼ kilogrammes, or 130½ lbs.

No. 3, *Tente Conique, for twenty men.*—This tent is of the same shape as the English "Conical single-poled round tent." Its dimensions are 16 feet wide by 9 feet 11 inches in height; the pole is 3 inches in diameter, and of one piece of round wood. As there is no wall to this tent, the canvas is simply stretched out in a circular form, and then secured to the ground by twenty-four wooden pegs.

There are two curtain doors which shut and open at pleasure, and are secured in the same manner as described for the "Tente de Troupe." Ventilation is provided by having eight brass eyelets let into the canvas at about 2½ feet from the top of the tent: they are protected from the wind and rain by eight small buffalo-leather hoods. The weight of the hempen canvas is 36½ kilogrammes, or 73 lbs.; weight of the tent, complete, 57½ kilogrammes, or 115 lbs.

No. 4, *Tente Conique à Muraille, for twenty men.*—This is nothing more than the Turkish soldiers' tent, having an improved method of ventilation. It has a circular base 16 feet in diameter, has a wall all round, 16 inches in height, and is supported by a round pole (in one

piece), 3 inches thick and 9 feet 11 inches long. Twenty ropes, fastened to the upper part of the wall, stretched out, and secured to the ground by twenty wooden pegs, keep the tent upright when pitched. Twenty short loops of rope and the same number of pegs secure the bottom of the canvas wall to the ground. The curtain door of the tent forms the bottom portion of two breadths of canvas, which, when opened as a door and stretched out horizontally, is supported by two sticks and ropes, as already mentioned in the description of the "Tente de Troupe." The improved plan of ventilation appears to be very simple: a very strong circular galvanized iron ring, 12 inches in diameter, forms the top circle of the tent, the top circular ends of the canvas are wrapped round this ring and sewn firmly to the inside of the top of the tent, thus making a hollow opening of 12 inches in diameter. A circular wooden top, 2½ inches thick, and slightly rounded at the top side to allow of the rain running off, entirely covers and overlaps the ring: they are fastened together by four very strong short leather straps and buckles. The centre of this wooden cap rests on the top of the pole, and, as the canvas is tightly stretched out when the tent is pitched, it naturally lengthens the four leather straps which secure the cap and ring together; thus, as the downward pressure on the

top of the ring is equal over its surface, it follows that the circular aperture caused by the tension of the four straps is equal. This is the method of top ventilation, but should a wider aperture be required, the four straps must be uniformly lengthened before the tent is pitched.

Forty-five wooden pegs are required for this tent, forty-two in use and three in reserve.

The weight of the hempen canvas is 35 kilogrammes, or 70 lbs.; cotton canvas, 28½ kilogrammes, or 57 lbs.; weight of the tent complete, if made of hempen canvas, is 112 lbs., or of cotton canvas, 97 lbs.

The weights above mentioned are in French pounds, and the measurement in English feet.

The "Tente à Muraille" has not yet been adopted, but it will undergo a trial this year at the camp at Châlons; and, as far as can be judged, it will, from its superiority in shape, build, and strength, and plan of ventilation, be found superior to the others.

AUSTRIAN TENTS OF 1858.

During the author's short sojourn at Vienna in April, 1858, by the courtesy of H. I. H. the Archduke William, the Commander-in-Chief, opportunity was afforded for a minute examina-

tion of all the Austrian military tents, old and new.

The old tents were of two sizes:—

First, the Long Tent, as generally used in Italy or for standing camps, consists of a series of 4-inch squared poles about 14 feet long, having a ridge-pole fixed on the top extremities; the poles are inserted about 12 inches into the ground. Between each pole, at a height of about 7 feet 6 inches from the ground, is fixed a shelf called "Brod-Brett," or bread shelf, on this the soldiers place their bread and other articles. There is also a square wooden bar 4 inches in diameter, secured between each pole and at 3 feet 6 inches off the ground; half the length of each bar, and at both sides, is provided with iron pegs, on which the soldiers hang their knapsacks; the other half is reserved for the use of the muskets, and to prevent them touching each other a slight indentation is made in the wood to admit of the barrels entering, the butt-end resting on the ground. To secure the tent during storms, a rope is fastened to the two outside faces of the top of each pole, within the tent; it is then stretched out and firmly pegged to the ground, passing over the top canvas wall of the tent, at three feet off the ground. The canvas is stretched out and secured to the ground by ropes and wooden pegs. The length of each

tent is about 40 feet. The weight of one of these tents is 730 lbs. (Vienna), or about 900 lbs. English. These tents accommodate fifty soldiers.

The second is called "Tente de Marche," and is very simple in its construction; thus,—two poles, about seven feet long and joined together at the top by a ridge-pole, form the frame of this tent; canvas is stretched over it and pegged to the ground. The weight is about 35 lbs. The only object in still using these tents for military purposes is to wear them out.

The question of remodelling the Austrian tents has for some time past been under the consideration of the government, and an officer of high talent, Captain Antoine Theurekauf, of the 23rd regiment of foot, was, in 1856, selected to construct a new tent, and his invention, approved of by the government, is the only tent now officially authorised to be used in the Austrian army.

Captain Theurekauf's Tent for Soldiers.—This is a large single-poled tent, in length 22 feet, and in width 26 feet, inside ground measurement. It has a triangular-shaped entrance at each end; the top of the triangle from the ground is 7 feet 6 inches, and extreme ground width is 12 feet, the covering

or canvas of which falls perpendicularly. The canvas walls are 3 feet high and are fastened inside to the edge of the roof by iron hooks and eyes; the outside roof-flap is also secured to the outside of the wall by means of oblong wooden buttons and loops; this prevents the wind from obtaining direct ingress to the tent.

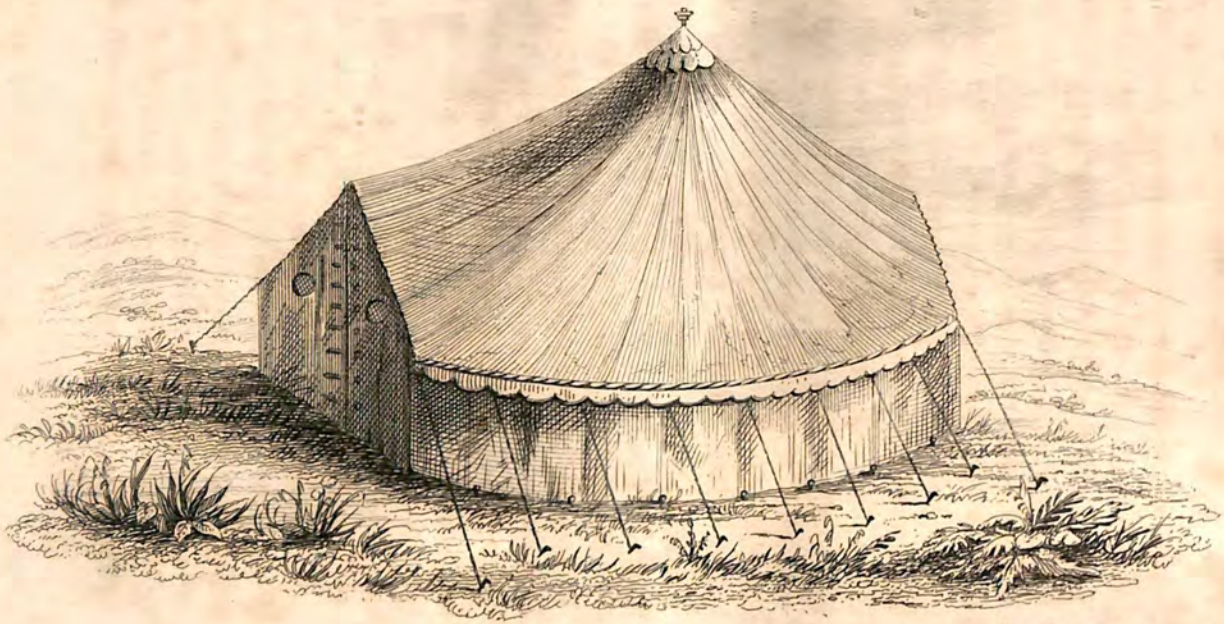
The tent pole consists of one piece of wood, 4 inches in diameter and four flat sides, its length being 13 feet 6 inches. On pitching this tent, the pole is inserted 12 inches into the ground, and retained in that position by a square block of wood, through which the pole passes: at the top is fixed a thin iron rod, on which a circular piece of wood—shape of half an orange—is placed, having a centre hole large enough to admit of the iron rod; this circular piece of wood forms the head, on which the top of the canvas rests. At 8 feet distance on each side of this pole is placed another 3 inch diameter squared pole, 8 feet 6 inches in length, and sunk 1 foot into the ground. On the top is laid a bread shelf which is secured to the centre pole, and extends to the top of the triangle of each doorway—each shelf is thus 10 feet 10 inches in length; between these two poles and the centre one, is also fixed a wooden bar 3 inches in diameter, and at $3\frac{1}{2}$ feet off the ground, iron pegs are inserted into half the length of

each bar, on which the soldiers hang their knapsacks; the other portion is reserved for reclining their muskets against. At the top part of the centre pole, and facing the entrances, is fastened a double rope, which is then secured to the end of the bread shelf; the ends of the shelves are again secured by four ropes, which are stretched outwards and pegged to the ground; these four ropes form the top sides or slope required to form the triangular entrances. Two circular windows or openings in the canvas are provided for each doorway, and can be opened or closed at pleasure. The canvas roof is stretched out in the usual manner, and by means of ropes pegged to the ground.

The Austrian tents are not provided with any bottom fly or curtain, consequently the wind penetrates under the walls of the tents. There are 24 small wooden pegs for the wall and two entrances, and 18 large pegs for extending the canvas roof and 4 shelf ropes.

The canvas (hemp) weighs 98 lbs. of Vienna, or about 121 lbs. English. The whole of the wood, including the pegs, weighs 210 lbs. of Vienna, or 259¼ lbs. English; weight of iron bolts, &c., for shelves is about 5 lbs. English. The weight of the tent complete is 324 lbs. of Vienna, or about 387¾ lbs. English.

The construction of this tent is so strong, that



Alfred Aikard Sc.

Capt.n Theurekauf's Austrian Tent.

it is said severe gales of wind have not been able to blow one down.

The *Zwilch*, or hempen canvas of which these tent coverings are made, does not appear to be of sufficiently close texture to exclude heavy or continuous rains, and, from enquiries the author made, he is led to believe that such is the fact. A tent, complete, of the above dimensions costs about 200 florins, or 20*l*. Four tents are requisite for a company.

CAPTAIN THEUREKAUF'S TENT FOR OFFICERS.—The officers' tent is of the same size, form, and dimensions as that of the soldiers, with the following exceptions. One tent only is allotted for the use of the officers of each company, and for their comfort the interior space of the tent is divided into four equal portions; as in the soldiers' tent, the 3 poles and bread-shelf remain, but the arm-rack-bar is removed, but as the tent is divided into 4 equal parts, a cross bar is fixed to each side of the centre pole on a level with the bread-shelf; this extends from the centre pole to within a few inches of the canvas roof: double ropes support the end of each cross bar, one end is fastened to the top of the centre pole, and the other end passes over the top of the wall, and is then pegged to the ground outside the tent. To the bread-shelf and cross bar

hangs a coloured curtain pegged to the ground. A curiously-contrived alcove or bag is sewn to one of the curtains, narrow at the top and gradually increasing in width till it reaches the ground, where it is large enough to admit of an ordinary sized camp-mattress. The weight of the officers' tent, fitted as described, is 25 lbs. heavier than that of the soldiers', *i. e.* 349 lbs. Vienna, or 418¾ English.

THE TENTE DE MARCHE, OR FIELD TENT.—This tent has not at present been definitely adopted, owing to the ridge-pole not proving sufficiently strong. The shape of the tent is oblong on the ground and tapering towards the top all round, the same as the roof of an English hospital tent.

There is one round pole 3 inches in diameter, 7 feet long, pointed like the English circular tent-pole; the ground end of this pole rests on a flat circular piece of wood; at the top is a short spike of iron on which is secured a square stick, 2 inches in diameter and 5½ feet in length. The length of the tent, inside measurement, is 18 feet, by 14 in width. To secure the pole and ridge bar in a vertical position a rope is attached to each side of the top of the pole, then stretched out to the width of the inside of the tent, and pegged to the ground. At each end of the

ridge-bar are also fastened two ropes, which are stretched outwards within the tent, forming a triangle, with the ground as a base; they are then pegged to the ground. A strong canvas cover of the required size and shape is then thrown over this frame, and by wooden pegs is secured to the ground. There is an entrance at each end.

This tent accommodates two officers or ten men. There are 22 wooden pegs required, weighing about 15 lbs. of Vienna. The weight of the hempen canvas is 31½ lbs.; weight of pole, cross-bar, and ropes, 9¾ lbs. Thus the total weight of the tent complete is 56¼ lbs. Vienna, or about 69½ lbs. English.

It is to be observed, that both in the old and modern tents, the Austrian plan of attaching storm ropes is directly the reverse of the English system, which is to have such ropes on the outside. There are several advantages gained by the Austrian mode, which deserve attention; the storm ropes are shorter, about two thirds of their length is under cover and dry, the rope materially assists the canvas roof from bulging in, during a storm, and having so great a portion of its length always dry, does not swell out and shorten. In the description of the field tent it is to be noticed, that all the ropes are inside; they not only serve to keep the pole

upright, but also assist to rigidify the canvas which in a great measure prevents its bulging inwards, by the pressure of the wind; by this method the strain on all the pegs is about equal, a point worthy of consideration as all unnecessary tension of the canvas is to be avoided; as nothing is more detrimental to its durability than the excessive strain it is subject to during a storm.

PRUSSIAN TENTS.

By permission of the Minister of War the Author made a minute inspection of the Prussian tents on his visit to Berlin in April, 1858. The tents now in use are those made during the wars prior to 1815. There are five kinds: 1, the general's tent; 2, cavalry officers'; 3, cavalry soldiers'; 4, infantry officers'; 5, infantry soldiers'.

The General's Tent corresponds nearly in every respect with the English "Hospital Marquee." Its length—inside measurement—is 30 feet, its width 14 feet. Two poles, 4 inches in diameter, 10 feet long, and a ridge-pole 4 inches in diameter—in one piece—15 feet 4 inches long, form the frame work on which the canvas is placed. The poles do not enter the ground, but

are fixed into the centre part of two stout wooden bars, placed cross-wise; thus each pole stands without any other support. The hempen canvas of the roof is double, but single for the walls. The walls, which measure 4 feet in height, are attached to the roof by means of hooks and eyes. There is one entrance to this tent, the opposite extremity being curtained off to form a bed-room, 11 feet by 14. The roof is stretched out by 33 long ropes; 4 ropes are attached to the top and outside extremity of the poles; they cross each other about the centre of the roof, and extending to the ground are secured by wooden pegs. There are 90 wooden pegs (including 4 in reserve) and two mallets.

The weight of the canvas with the ropes is 105 lbs., about equal to 129½ lbs. English; the weight of the tent complete is 300 lbs., or about 372 lbs. English. There is no ventilation.

THE CAVALRY OFFICERS' TENT is 8 feet square, two poles 7 feet long and a ridge-pole form the frame work; over this is placed a double canvas roof, which on being stretched out is secured to the ground by eight long ropes, four at each side; the walls are 26 inches in height, and of single canvas; the extremities are closed by a canvas wall falling perpendicu-

larly, one end being cut down the centre for the entrance.

There are twenty-six wooden pegs (three in reserve), and one mallet.

The weight of the tent complete is 41 lbs., or about 50 lbs. English.

Owing to the absence of a rope at each end, together with the large extent of vertical canvas exposed to the wind, the author is of opinion that this tent would not stand long during a storm, especially should the wind blow against one of the unsupported extremities.

CAVALRY SOLDIERS' TENT.—This tent is similar to the officers', with the exception that the closed end is circular. It has a sloping roof, stretched out and secured to the ground by ropes. It is 13 feet in length and 8 feet in width. The pole, of one piece, is 12 feet long and $3\frac{1}{2}$ inches thick. The ridge-pole is 8 feet long, and of the same thickness as the poles. There are twenty-six wooden pegs (three in reserve). The weight when complete is 30 lbs., or about 37 lbs. English.

THE INFANTRY OFFICERS' TENT is a one-poled round tent of double canvas, with walls 2 feet in height. It is 12 feet in diameter; and the pole, of one piece, is 12 feet long, and $2\frac{1}{2}$ inches

thick. There is an iron spike attached to the top of the pole, on which is placed a wooden cone cut flat next the pole; the canvas rests on this, and is then stretched out and pegged to the ground. The entrance is fastened by tape strings. There are fifty wooden pegs (seven being in reserve), and one mallet. The weight complete is 85 lbs, or about 105 lbs. English. This tent is allotted to one captain, or three subaltern officers.

INFANTRY SOLDIERS' TENT.—This tent is of the same form as that for the officers, but it is 14 feet in diameter, and the pole is 11 feet 8 inches long. The pole has no spike, and the canvas (single hempen) rests on its rounded end, without other support; the inside of the top of the canvas is lined with leather to prevent the end of the pole from destroying it by friction. Its weight when complete is 65 lbs., or about 80 lbs. English; it will accommodate from fifteen to eighteen men.

SWEDISH TENTS.

ALL the information which the author could obtain relative to the tents used in Sweden, is embodied in the following account of the circular conical tent of the army of that country, which has been communicated by Lieut.-General Lefrén, of the Engineers, president of the College of War at Stockholm, and a large contributor to scientific military works.

This tent, which has been in use in the Swedish army since December 8th, 1806, is a single-poled conical tent, 19 feet in diameter at its base; the height, or length of the pole, is 12 feet and 9 inches; the canvas is of strong hemp and in twenty-two triangular cloths; there are twenty-two wooden pegs which secure the tent, when pitched, to the ground: attached to the top of the pole (outside), are three storm ropes, which when stretched out and pegged to the ground complete the tent.

There is no wall, so the twenty-five pegs are all that is requisite.

The weight of the pole, which is in two pieces, is 19 lbs.; the weight of the canvas with ropes 43 lbs.: weight of the pegs, &c., 13 lbs.: making the total weight of the tent 75 lbs.

From the plan of the tent given in the engraving it will be perceived there is but one entrance; it is capable of accommodating from twenty-five to thirty men. The preceding measurements and weights are English.

BELGIUM.

THE Belgian army is unprovided with tents of any description.

SARDINIA.

THE Sardinian army has a variety of tents of French, English, and Turkish construction.

ENGLISH TENTS OF RECENT INTRODUCTION.

TENTS, or canvas dwellings, are but little required in the United Kingdom, save for military purposes, or those slight constructions used for pleasure parties as screens from the sun or shower. It is therefore not necessary to describe

any but such as may be considered at all useful for permanent residence.

Edgington's improved Military Tent, already alluded to in the preface, is, in the ground plan, square. The size varies from 8, 10, and 13 feet. The tent is supported by a centre pole consisting of three pieces; besides this there is a lighter pole in two lengths to sustain the porch or entrance. (Some of these tents have two entrances.) Mr. Edgington says, "This tent is very superior in every respect to the round tent of the British service: a prize medal was awarded me at the Great Exhibition of 1851."

The best size for troops is 13 feet square, giving accommodation for 16 men. Its shape is that of a pyramid; the four angles of the covering are strengthened from the head of the tent to the ground by a continuous 1-inch rope, to which the canvas is "bolted," and, being secured by four iron pegs driven into the soil, constitutes the principal stay or support of the tent, when pitched: thus the strain or pull is on the four ropes on the canvas. Ventilation holes are provided near the top of the tent by holes cut in the canvas, and to prevent the rain from blowing through are protected by a strong canvas hood. The intermediate parts of the canvas are pegged to the ground by eighteen wooden pegs, viz. five for each of the three

spaces, and three pegs for the entrance; the shape of this latter is triangular, having an opening down its centre, which is closed by the means of loops of cord, fastening one within the other. A tent of 10 feet diameter, including poles, pegs, &c., is packed up in one valise 45 inches long by 15 inches diameter, and weighs about 90 lbs.

His *Bell or Single-poled Conical Military Tent*, such as is now in use with the British Army, complete weighs about 70 lbs.; the poles are 5 feet long.

His *Round-wall Tent*, which is 10 feet in diameter, complete weighs about 138 lbs; the poles are 6 feet 6 inches in length.

His *Marquee*, which is of single canvas, is 30 feet long by 16 feet wide, and complete weighs about 226 lbs.

A Mr. George Turner has also patented some tents and marquees adapted for military camps and hospitals, &c. The stays or framing for supporting the covers of these tents are made of galvanized wire cord, variously arranged or fitted to the central poles or tubes, and do away with the ridge and eaves poles ordinarily used, thereby effecting a saving in weight. The stays lead to the ground, and are secured by lanyards, &c., to galvanized iron pegs, which being properly driven into the ground, will bear considerable strain. The covers are of mineral-

ized double fabrics, or other suitable waterproof material. The seams are secured by light rivets instead of sewing. Ordinary duck or canvas can be used if preferred. The curtains or walls are of light cotton canvas, and depend directly from the roof to the ground. Each covering is fitted with one or two entrances, and in the marquees additional openings are fitted in the end section of the roof, to admit light and air.

Mr. Turner states that his tents can be pitched or struck in 15 or 20 minutes.

The weight of a tent complete, 17 feet in diameter, 12 feet high, adapted for eighteen men, is about 300 lbs.; one for twelve men 170 lbs. A tent for two or three persons weighs 100 lbs. A hospital marquee 60 feet long, 29 feet wide, and 18 feet high, with all its fittings exclusive of bedsteads, weighs about 896 lbs.

In these weights a fireplace adapted to the tents is included; the hospital marquee has two fireplaces.

My own Guard Tent

THE AUTHOR'S TENTS.

THE advantages the Author claims for his own patent tents over all others are their great portability and strength to resist storms, as well as the ease and rapidity with which they can be pitched and struck. It will be seen that the form of the tent is a curvilinear octagon, whereby it is less liable to catch the wind than the perpendicular wall and conical sides of tents constructed on the old system. The most striking peculiarity is the total absence of the centre pole. The frame of the tent is formed of stout ribs of ash, bamboo, or any other flexible material. The ends of the ribs are inserted into a wooden head, fitted with iron sockets, and the butts are thrust into the ground, passing through a double-twisted rope, having fixed loops at equal distances. In this position the ribs have a strong resemblance to those of an expanded umbrella. The rope through which the butts of the ribs pass is well pegged to the ground, and the canvas cover thrown over the frame-

work, and secured within the tent by leather straps to the ground or circular rope.

Additional security or firmness is given by outside storm-ropes, radiating from the cover at the back of each rib. In connexion with these are six inside storm-ropes for the hospital tent.

The canvas used is double and waterproof, and, if required, the strong canvas covering in which the whole tent is rolled up can be divided into two parts, and buttoned to the inside of the tent, the buttons being provided for the purpose, thereby affording a material ground-support to the whole of the canvas around the bottom of the tent, when the rifles and knapsacks of the men are placed thereon; this prevents the ground current of air from blowing direct on the men when lying down.

Perfect ventilation is another advantage, and fires can be lighted within the tents, the smoke escaping through the ventilation holes at the top, which are easily covered or uncovered as needed.

The tents generally are of white double cotton canvas, but the guard tents for outpost duties will be of a dark grey colour, as less liable to attract observation at a distance. The guard tent can be struck and packed in three or four minutes, even by men unaccustomed to their management.

The author's tents occupy remarkably less space than those of the government tents. The present hospital tent is 29 feet long, 14½ feet wide, and 15 feet high, inside measurement; when pitched it covers a space of ground 20 paces by 17, or about 340 square yards. The author's hospital tent, which is 30 feet long, 15 feet wide, and 10 feet high—inside measurement—when pitched covers a space of ground 7 paces by 9 equal to about 63 square yards; the difference in favour of the latter being about 277 square yards. Thus, on the author's principle, five of his patent hospital tents occupy the same superficial quantity of ground as is required for only one of the government hospital tents. The latter gives accommodation to either 20 sick, or 30 soldiers fit for duty; whereas the former, with five tents, which occupy no more space, give accommodation to 100 sick or 150 soldiers in health.

The field tent is made up into one package, 5 feet 6 inches long, weighing 100 lbs.; the guard tent into one package 7 feet 6 inches long, weighing 52 lbs.; and the hospital tent into three packages, viz., two of 7 feet, and one of 4 feet long, weighing respectively 166 lbs., 139 lbs., and 90 lbs., making in the aggregate, 395 lbs.

SPECIFICATION.—To Godfrey Rhodes, now of Ship Street Barracks, in the City of Dublin, Captain in Her Majesty's 94th Regiment of Foot, for Improvements in the Construction of Camp or Field Tents.

THE object of this invention is to construct military and other tents that shall present the advantages of great portability and lightness, while at the same time they afford increased facilities for pitching, and effectual protection for their occupants against the weather.

To this end, instead of using as it is now customary the objectionable contrivance of a central pole or poles to take the strain off the tension ropes over which the canvas is stretched, I construct a frame-work of pliable ribs or laths, composed of wood, iron, or other suitable flexible material, the upper ends of which are inserted into sockets, made in a circular or other shaped head-piece of wood or metal, and are capable of being readily removed therefrom; while the other or ground ends of the ribs or laths are passed through loops made in an endless band or strap, composed, by preference, of double-twisted rope. A parabolic or other curvilinear-formed frame is thus made, capable of receiving and supporting a suitably shaped canvas covering, which when placed over the

frame is secured thereto, and, the ground band being pinned to the ground, the tent is held securely in place.

In the accompanying drawings I have shown my invention as applied to three forms of tents, and in all these it will be seen that the same principle of construction is embodied. Sheet 1 exhibits in several views, a guard tent made according to my invention; figs. 1, 2, 3, and 4, show the tent in perspective, in elevation, and vertical section and plan view. Figs. 5 and 6 show the head-piece formed with radial sockets to receive the upper ends of the ribs or laths, *a a* (figs. 3 and 4). And figs. 7, 8, and 9, show the ground-rope which binds the ribs together at their lower ends, and thus imparts strength and tenacity to the framework of the tent. These latter figures also serve to explain the mode of pinning or holding down the rope to the ground. The ground or binding rope it will be seen is composed of two cords, *b c*, which are twisted together, and in such a manner as to form loops in the rope, at equal distance apart, for the insertion therein of the ribs or laths, *a*, forming the framework of the tent. The lower ends of the ribs are pointed, to facilitate their entrance into the ground; and the further to secure the tent in position, the binding rope is pegged to the ground by tent-pegs

or hooked and barbed pins, *d d*, set at suitable distances along the rope, as shown best in the plan view fig. 4. When the framework is thus secured, the canvas covering of the tent is placed over the framework, and is fastened to the ground band or binding rope by means of straps (as shown at fig. 8), which are passed round the band or rope, and are buckled back to the canvas inside. The canvas covering will be most conveniently made by connecting gores of the material together by sewing or otherwise, and the material is made waterproof by any of the well-known methods.

The entrance to the tent is through a semi-circular parabolic or other shaped opening made in the canvas covering, and for this opening I provide a curtain or curtains which may be rolled up when not in use and made fast, as shown at fig. 2. Or the curtain may be held extended by pegs, as shown at fig. 1, and thus afford protection from the sun or rain without interfering with the free ventilation of the tent. For the ventilation of the tent when the curtain is let down, an opening is made through the head-piece, which may be covered with a ventilator cap to prevent a down draught or the admission of rain. From the above description it will be understood that the construction of the tent is very simple, and that its erection may

be effected in a very short space of time. And with respect to its compactness for travelling, it will be understood that, as the parts are all detachable, they may be laid very closely together. Thus the ribs may be laid side by side, and the canvas covering lapped round them, the head-piece and the holding-down pins being also placed within the roll. The tent will thus form a package like that shown at fig. 10, and being laced up or strapped in a canvas covering, as shown at fig. 11, it will be ready for transport to any part of the world.

In sheet II. of the drawings I have shown my invention as adapted to the construction of a curvilinear field tent, and as the above description applies equally to this arrangement, I have employed the same reference figures and letters to denote corresponding parts in the two sheets. In the sectional elevation, fig. 3, sheet II., I have shown the manner of introducing a storm rope, which may be applied in case of a hurricane to insure greater stability to the tent. This figure also shows the canvas covering provided at its edge with both an outside and an inside skirting, which, when spread out upon the ground, will prevent the wind getting under the covering of the tent. The inside portion of the skirting is detachable, and when the tent is pitched, it is laid out on the ground and

hooked up to the canvas covering on the same hooks that receive the straps that connect the canvas covering with the ground rope. This inside skirting piece will admit of the soldiers placing their knapsacks or any other articles upon it, whose weight will greatly tend to secure the canvas or tent covering from being blown off during stormy weather.

Sheet III. shows in several views a curvilinear hospital tent, the opposite ends of which are composed of semicircular frames constructed on the principle above described, the same being connected together by a ridge-pole, which is supported by its ends being screwed into the heads of the semicircular frames. This ridge-pole is provided along its length at equal distances apart with brass or galvanized sheet-iron socket pieces to receive ribs which form the side framing of the tent. Fig. 1 is a perspective view of the tent. Fig. 2 an end view. Fig. 3 a vertical cross section, and fig. 4, a plan view. Figs. 5 and 6 show the head pieces, formed with radial sockets round one half of the periphery, and having a tapped hole to receive the ends of the ridge-pole. Figs. 7, 8, and 9, show the ground band or binding rope, which is constructed as already described, and made fast to the ground in the manner above explained. Figs. 10 and 11 show the ridge-pole fitted

with metallic socket pieces, each of which receives the upper ends of a pair of ribs forming a portion at the side framing; these socket pieces I fit with a hook, as shown, to carry a storm rope, which can be pinned to the ground when required to be used in the inside of the tent. And also storm ropes on the exterior may be used by throwing a rope across the ridge pole having brass eylet holes passing over iron or brass pins projecting about 6 inches above the line of the ridge-pole. These pins are formed by a continuation of the screw that screws the rib sockets to the ridge-pole, having a hook or ring beneath for lantern or inner storm rope. The hook also affords convenience for supporting a lantern or other article required to be suspended. For the convenience of transport I prefer to form this pole in several lengths, and fit them together by means of tapped socket pieces, as shown at fig. 10. The efficient ventilation of the tent is provided for in the manner above explained, and by leaving other openings in the canvas covering.

It will now be understood that tents of any required capacity may be readily constructed on the principle of my invention, the length being increased or diminished by simply adding to or taking from the length of the ridge pole, and the number of ribs employed, without detracting in any respect from the stability of the structure.

Having now set forth the nature of my invention and explained the manner of carrying the same into effect, I would remark that I do not limit myself to the adoption of any particular figure in the construction of my improved tents, as their sectional shape and ground plan may be varied to suit varieties of tastes or requirements; but what I claim is employing in the construction of tents framework composed of ribs or supports secured together at their extremities in the manner and for the purpose therein described.

The Author contemplates applying his Patent Curvilinear System in the construction of a Portable and Endless Tent (tunnel-shaped), similar to the mode adopted in the French *Tente d'Abri*, so that the soldiers halting at their encamping-ground can, by uniting their several portions, instantaneously pitch their own tents without depending on the oftentimes uncertain arrival of the transit-mules or baggage-waggons. From its curvilinear form great strength and airiness will be the results; and nothing but light pliable ribs, canvas, ropes, leather, buttons, and a few pegs, are intended to be employed in its construction.

METHOD OF PITCHING, STRIKING, AND PACKING THE AUTHOR'S PATENT FIELD AND GUARD TENTS.

To Pitch.

The prepared circular double-twisted rope or band, is hooked together and laid to the full extent of its own circle on the ground; the butt ends of the eight ribs (for the Field Tent, the butts only,) are then inserted within the loops or openings placed or made in the circular rope. (This rope is called the circular ground-rope). Four men (if possible, eight men), are required to hold the eight ribs and stretch them outwards, to the fullest extent that the circular ground-rope will permit; each rib is then forced into the ground, until the iron stops (a fixture on the butt end of ribs) touch the ground rope. The eight ribs will then stand vertical with the ground. A wooden peg is driven over the ground rope, at the centre between each rib, permitting of about one inch from rope to inside crook of peg. The top ends of ribs are placed into the sockets and gradually bent down inwards and inserted into the socket holes of the

circular wooden head; this head is supported by one man during the time that the canvas tent-covering is placed over the now formed frame-work. The eight sectional seams of the canvas are then placed over each rib; the four long straps next to the four ribs, which are situated at each side of the two entrances, are then passed underneath the circular ground-rope and buttoned to the brass studs inside. The same thing is then done to the straps next the remaining four ribs,—the eight intermediate straps touching the eight wooden pegs are also passed and buttoned, as above. If required, the strong canvas covering, or bag in which the whole tent was rolled up, is then divided into two parts, and buttoned to the inside of the tent, on buttons prepared for that purpose.

For Field Tent only.—The leather straps, situated at three feet off the ground and fixed to the canvas of the tent, are then buttoned round each rib. The short outside storm-ropes (if required) can be hooked to the brass thimbles or rings, outside the tent, and pegged to the ground. The short storm-ropes are not to be fixed until the eight leather straps have been buttoned round the ribs inside the tent.

To Strike.

The method of striking the above tents is the reverse of pitching them. The storm-ropes are first to be unhooked, then the short leather straps fastened round each rib, and the bottom straps all round the tent, to be unbuttoned. The canvas to be removed. The frame-work to be taken down by first removing the top ends of ribs from the circular wooden head. The ribs to be then pulled from between the circular ground-rope. The pegs to be removed and the rope taken up. The ribs are to be tied up in one bundle. The twenty pegs, one driver, and two mallets, to be placed into the peg-bag. The ribs, head, and peg-bag, are to be placed on the canvas of the tent and rolled up inside. The two inside strong canvas ground curtains are to be buttoned together,—the tent to be laid on them, and folded up within them. A rope (or two of the short storm-ropes) to be tied round.

The field tent is also provided with eight rifle loops, which are attached round the ribs, and give accommodation for sixteen stand of arms (either rifles or carbines).

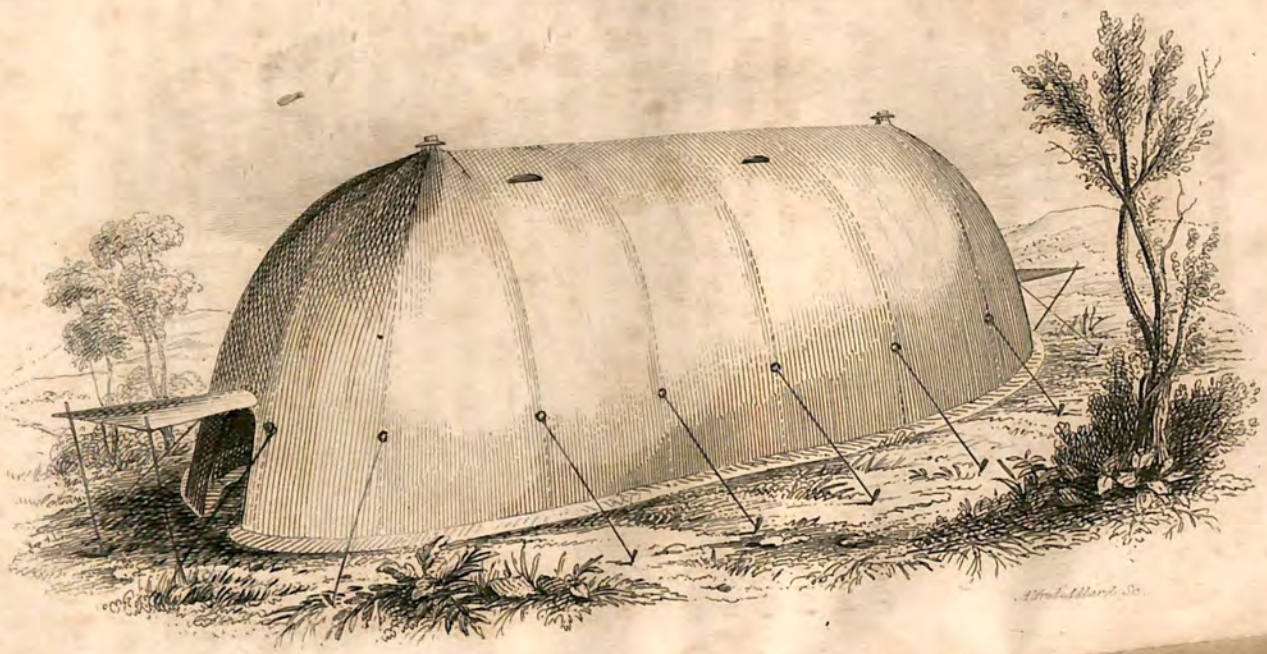
N.B.—The outside canvas covering is stamped, giving the number of men and total weight of tent when packed up.

Method of Packing.

After the tent is struck the two inside ground curtains are buttoned together and laid on the ground. The ribs are tied together (in one bundle), and laid on the centre part of this curtain. The canvas covering of tent is first carefully pulled out to its entire length, folded and then doubled up and laid on the top of the ribs, but of same length as ribs (leather head folded inside). The peg-bag (containing for field tent, twenty pegs, two mallets, and one driver; for guard tent, ten pegs, one mallet, and one driver) is placed on one side of the tent covering. The wooden head is packed within the folds of the canvas; the storm and ground ropes for field tent are laid on the top or sides of the canvas. The strong canvas cover is folded over (commencing by the two ends), and then tightly secured by means of a rope tied round.

It is to be observed, that the author's Patent Hospital Tent when packed up weighs 395 lbs., whereas the Government Hospital Tent of the same dimensions weighs 507 lbs.

*** The Tents may be seen at Messrs. S. W. Silver & Co., 66, Cornhill, London, the sole Agents.



My own Hospital Tent.

METHOD OF PITCHING, STRIKING, AND PACKING THE AUTHOR'S PATENT HOSPITAL TENT.

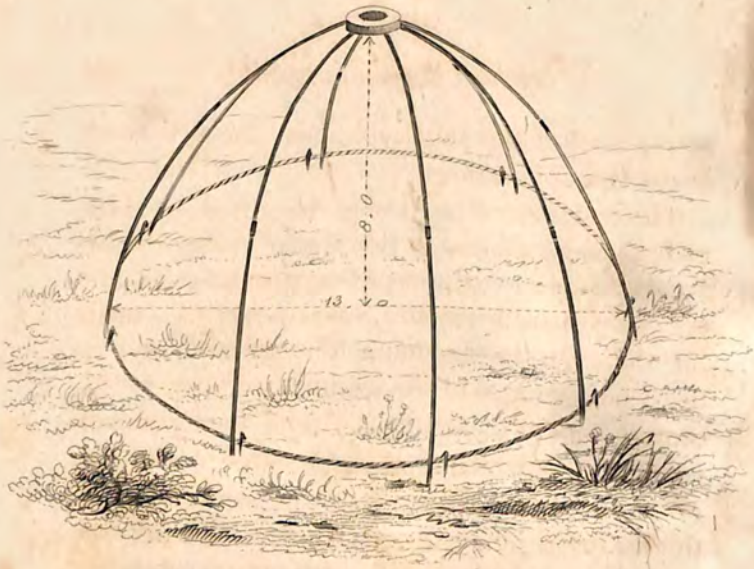
THE length of this tent is 30 feet, breadth 15 feet, height 10 feet. The eighteen ribs (viz. tops and butts), which form the framework, each measure when joined fourteen feet and two inches. There are two double twisted ropes called ground-ropes, which, when hooked together and laid on the ground in an oblong or oval shape, form the ground-plan of this tent; this rope has fixed holes or openings, through which the butt ends of the ribs are passed, when the frame of the tent is pitched.

To obtain the correct width of ground-plan without either rule or line (either during the day or night) one of the entire ribs (a butt and top joined), is laid flat on the ground, this gives a length of 14 feet and 2 inches; add thereto 10 inches, or the length of a soldier's foot, and the required width of 15 feet is obtained; make a vertical hole in the ground (about 10 inches deep) at each end of the measured distance, with one of the drivers. Place the third opening,

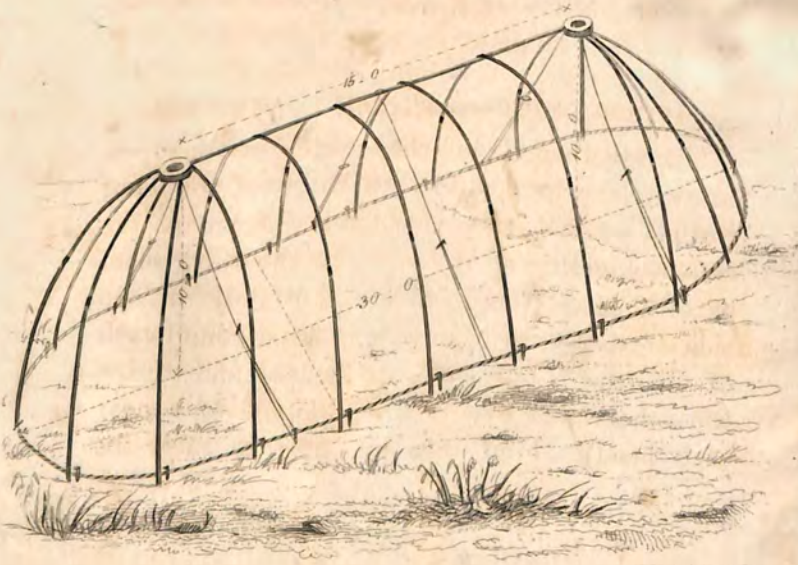
made in the double ground-rope (counting from the hook or joining of the two ropes) over these two holes, insert the butt end of a rib into each, or mark the places with two pegs. The rope being now secure, stretch it out on the ground until the third loop or opening from the other hooked joining is reached; make a hole and mark it with a peg.

It is now requisite to obtain the 15 feet diameter of the tent from this point, so proceed with your measurement as already explained. Mark the intermediate points along the parallel sides of the tent by making holes with the drivers. Both of the semicircular ends of the tent are to be similarly marked, but prior to making any holes the semicircle is to be made by tightly pulling the rope outwards, taking hold of it at the four fixed openings. A butt and top should be laid flat on the ground, outside the ground-rope, close to each opening.

The ridge-pole is screwed together,—the iron ridge-sockets placed on,—the two wooden heads carefully screwed to the pole,—the six inside storm-ropes secured to the heads and round the centre part of ridge-pole (two for each head); the three ropes for the inside lining are to be also (temporarily) secured. All the tops are to be inserted into sockets of butts, and then placed into those of the heads and ridge-pole (two men



Frame of Field Tent



Frame Work of an Hospital Tent

are to support the ridge pole near the two heads during this operation).

The framework is now to be lifted up (one man to each rib), and the sharp ends of butts are to be passed through the ground-rope and carefully pushed into the holes previously made for them in the ground. The ground-rope is to be now pegged to the ground, one peg in the centre between each butt. The inside storm-ropes are to be temporarily secured round the ground-rope and looped over the head of a peg; this is to rigidify the frame-work during the operation of placing on the canvas covering.

N.B.—Although it appears that twenty men are required to expeditiously erect this frame-work, I beg to state that a tent of the same dimensions has been frequently pitched and struck by only four men.

Method of Covering the Frame-work.

Tie together six of the outside storm-ropes, in two lengths; button up three of the long leather ground straps (which are sewn on the canvas covering of the tent), at the third seam or fifth strap from each end, but only on one side of the tent. Fasten one rope round each of the three buttoned-up straps, and throw the other ends over the ridge-pole (one near each head). Four men are now to raise the

whole canvas, and by the assistance of two men pulling the ropes, it is passed over the heads and ridge-pole, and slips down the curvilinear-shaped ribs on the opposite side of the tent. The two leather ventilators are placed over the two heads; the seams of the canvas must cover the ribs. The canvas to be now strapped round the ground-rope (always commencing at the two entrances), the inside storm-ropes to be loosened and secured to the large rope loops, the latter to be buttoned round the butts. The outside storm-ropes are to be now hooked on to the brass rings, fixed to the canvas of the tent (outside), and pegged to the ground. The inside ground curtain to be buttoned on. The inside lining to be pulled up, and then fastened to the sides of the tent, at the toggle loops.

A rifle loop is attached to the canvas of the tent (inside and next each butt), each capable of supporting two rifles; and as there are eighteen ribs to each hospital tent, thirty-six rifles can be most conveniently placed. The butts of rifles and knapsacks of the men are to rest on the top of the inside ground curtain when the latter is buttoned on the tent, and by their weight materially increase the stability of the tent during a gale of wind.

N.B.—The method of striking this tent is the reverse of pitching it.

Method of Packing the Patent Hospital Tent.

This tent is packed up in three packages. The two strong canvas inside ground curtains are laid on the ground doubled, and each buttoned up separately. The canvas covering of tent is rolled up to a length of 4 feet on one of the ground curtains,—a wooden head is placed at each end, and the canvas roll tied round by a rope. The bundle of tops, ground-ropes, storm-ropes, bag containing four drivers and three ridge-pole sockets, and peg-bag containing forty pegs and three mallets,—are laid on the other ground curtain, which latter is folded up and tied round with a rope. The eighteen butts, and ridge-pole, are to be packed up in a case provided for them.

Explanation of the Engravings which represent the separate portions of the Author's Patent Tents.

PLATE A.

A Section of a field or guard tent head.
B Plan of ditto, with ends of ribs inserted into wrought-iron stirrups.
C Side elevation of ditto, showing the stirrup-irons which receive the ribs.
D Plan of ridge-pole of an Hospital tent, with heads, ridge-pole rib, sockets, and centre brass screwed-joint.
E Wrought-iron shoe or rib, riveted with copper rivets.
F Section of Hospital rib which is 14 ft. 2 in. long, 2 × ¾ in. at the butt, 2 × ¼ in. at top.
G Cast-iron stops, secured with iron screws.
H Ribs, formed with ash or other flexible wood or material.
I Upper surface of head, always to be painted 4 coats blue.
K Copper sockets for joining butts and tops of hospital and field ribs.
L Wrought-iron stirrup-irons, which receive the ends of ribs.
M Rope filling up the groove in head, over ends of stirrup-irons, clinched through.
N Galvanized sheet-iron rib-sockets.
O Ventilation-hole (4 inches diameter) through the wooden head, which is made of lime-tree wood.

PLATE B.

1. View above cap of field or guard tent.
2. View beneath ditto, and cord for opening and closing ventilator cap.
3. View above head of hospital tent.
4. View beneath ditto.
5. Screw and brass junction-socket of ridge-pole.
6. Galvanized ridge-socket.
7. Butt, peg, and rope.

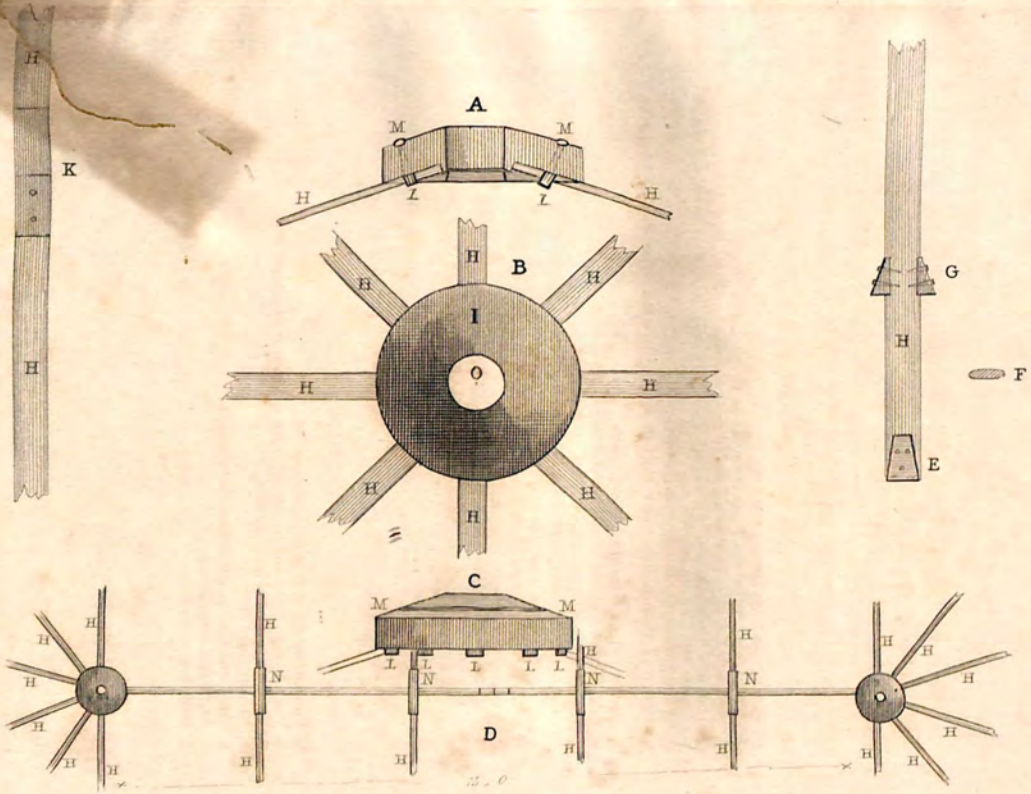
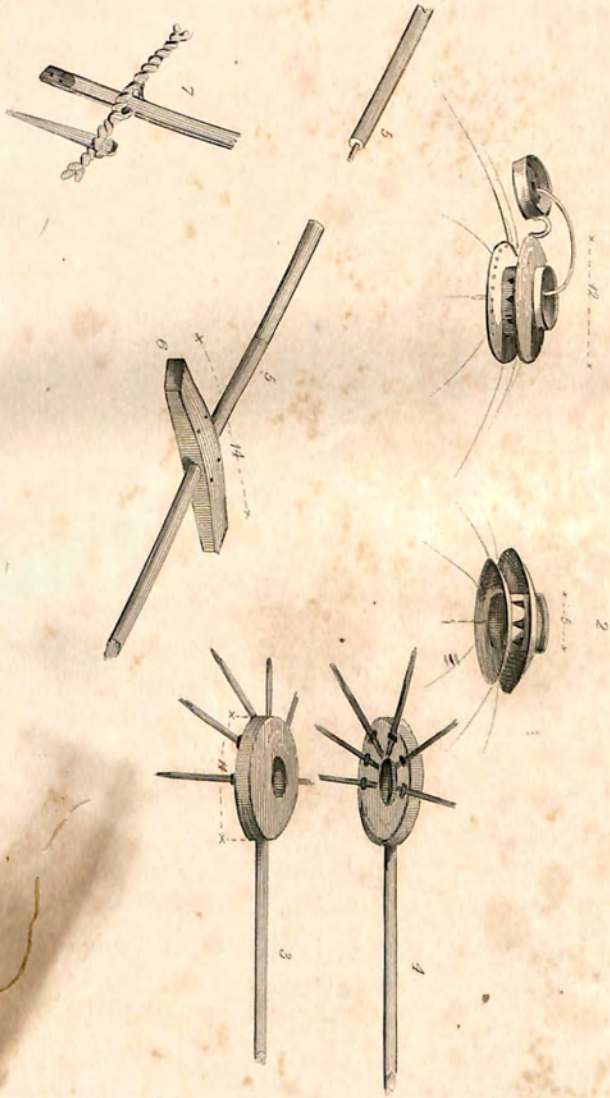


Plate A. — Details.

to face page 196.

Plate B. — Details.



Lloyd, Millard Sc.

METHODS OF ENCAMPING AN ARMY

IN

ANCIENT AND MODERN TIMES.

ROMANS AND GREEKS — GENERAL CUSTOM OF THE EAST — REGULATIONS OF THE BRITISH ARMY IN 1686 — DUKE OF YORK'S ORDERS IN 1799 — CASTRAMETATION — REGULATIONS ISSUED BY THE QUARTERMASTER-GENERAL IN 1853.

ENCAMPING AN ARMY IN ANCIENT AND MODERN TIMES.

THE practice of the Romans, as we gather from the 'Discourse concerning the Art of War,' prefixed to 'Cæsar's Commentaries,' translated by Professor Duncan, was for the military tribunes and centurions appointed for that service to advance before the main body, diligently to view and consider the place. When they had chosen the ground, they began by marking the general's quarters with a white flag, and distinctly set out its boundaries; then the quarters of the several tribunes were appointed, and after, those of the legions, all with distinct flags of several colours. Every legion, as well of the allies as of the Romans, had their portion of ground assigned and marked out for drawing a line round the camp, which was set about immediately, part of the troops continuing meanwhile under arms, to defend those that were at work upon the intrenchment in case of any sudden

surprise. All this was finished in a very short space, the Romans being remarkably expert in it by constant practice; for they never altered the figure of their camp, nor omitted to fortify it, in all the forms, though but for one night's continuance. As the arrangement in every camp was the same, every soldier knew his exact position, and, if an alarm occurred, could easily find the rallying point of his division.

Besides the plan, disposition, and well ordering of the Roman camp, there were many other wisely-ordained particulars which are worthy of notice: the care taken in the choice of the ground, the convenience of provision and forage, the security of convoys, and, as we have mentioned, the caution to prevent surprise or being taken at a disadvantage. Two things in particular they were more than ordinarily attentive to—health and safety; the first they endeavoured to secure by avoiding all morasses and fenny places, or where the wind was cold and unwholesome, which unwholesomeness they did not so much compute from the situation of the place as from the appearance and complexion of the inhabitants. As exercise contributes to health, the Romans kept their troops constantly employed. It has been observed in our days that the immoderate labour soldiers are obliged to undergo destroys our armies, and yet it was by

incredible labour that the Romans preserved themselves. The cause of the difference is doubtless this—that with the Romans fatigue was continual and without respite; in modern times the men are shifted from extremes of labour to extremes of idleness, than which nothing can be more destructive.

When towards the later times of the empire the Romans began to relax in preserving the practice of intrenched camps, the art of encamping fell into decay or was lost; a free passage was then opened to the Barbarians, who, meeting no resistance on the banks of the rivers which bounded the Roman territory, poured in upon these lately masters of the world, like a torrent, and easily overwhelmed a feeble race of men, whom luxury, with an undisturbed peace of many ages, had rendered utterly unfit for war.

The columns erected to record the triumphs of Antoninus Pius and Trajan have many representations of constructions for housing the soldiers, as well as of the habitations of the natives of countries the Romans attacked. In one place which is to record the wars against the Germans, the Romans, who have not perfected their landing, had erected sundry huts; one is a wooden house with a basement story, then a straw tent, and next a wooden tower of three stories with a sort of balcony around the middle. In the boats

are wooden huts, by which it would appear the Romans went fully prepared with houses and grain, not trusting to find either food or shelter in hostile lands. In another engraving are representations of the German habitations, which are straw-covered. The Romans, as we showed at p. 14, had for their officers canvas or cloth covered tents and pavilions, and there is an instance of one of the latter of very splendid appearance. Likewise in those representing the wars of Trajan against the Dacians, the Romans had with them magnificent tents; and there are here also instances of houses for preserving the grain being carried on their vessels.

The order and disposition of the Roman encampment is so well deserving of notice, that no apology is needed for fully explaining the details, as furnished in Professor Duncan's splendid edition of 'Cæsar's Commentaries.'

In the Roman army every legion was itself an army, combining with the advantages of every variety of weapon the absolute perfection of a military division.

The form of their encampment was most admirable. No matter how fatigued the soldier might be by a long march, or how harassed by a tedious battle, the camp was regularly measured out and fortified by a rampart and ditch

before any one sought sleep or refreshment. Careful watch was kept during the night, and frequent pickets sent out to guard against a surprise and to see that the sentinels were vigilant. As the arrangement in every camp was the same, every soldier knew his exact position, and if an alarm occurred could easily find the rallying-point of his division.

A Roman legion, under the consuls, consisted of 4200 foot and 300 horse: during Cæsar's wars it was composed of 5000 foot. Between the rampart and the tents there was an open place of 200 feet in breadth, which was continued all along the four equal sides of the camp.

There were four gates, one to each side. Livy says, "Cæsar drew up his men facing the four gates, that, upon a signal given, the army might sally from all the several gates at once."

It appears the Greeks always relied on some natural rampart, as a river or wood; but the Romans had one constant method—their camps were always surrounded by a ditch and vallum, or rampart.

The vallum was usually composed of earth or turf, though sometimes of stones or wood, and was surmounted by a palisade, and the ditch was on the outside. In stations which were designed to be permanent, and which were in a disturbed

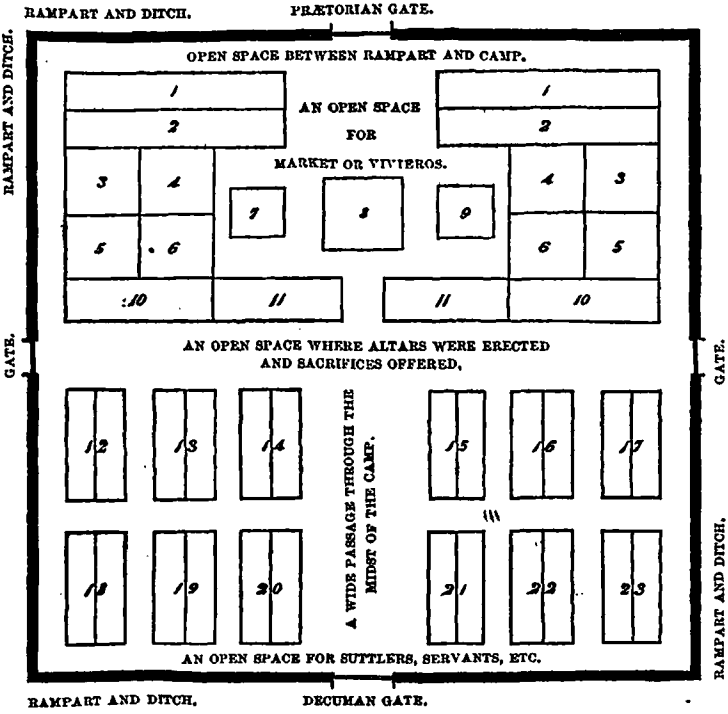
or hostile country, the earthworks were constructed with unusual care, and there are many remains or vestiges of them in different parts of Great Britain. One of the most perfect is at Ardoch in Perthshire, which station General Roy supposes to be the Lindum of Richard of Cirencester, founded by Agricola in one of his northern campaigns. General Roy, in his 'Military Antiquities of the Romans in Britain,' has given a plan of these stupendous works, and very fully described the ground. He traces the situations of three separate camps, which he calculates were formed to contain between 40,000 and 50,000 men.

The *military tribune* was an officer who commanded a division of the legions, ten centuries, or about 1000 men. The chief commander of the legion was called *legatus* (lieutenant).

The infantry was composed of three lines: the *hastati* (from *hasta*, a spear), who were young men, formed the first line; the *principes*, who were men in the vigour of life, formed the second line; the *triarii*, old soldiers of approved valour, were stationed in the third line.

In speaking of the Roman camps, it is necessary to distinguish between the summer and winter encampments (*castra æstiva et hyberna*); and again to discriminate between those camps which were formed to protect the army for a short

ROMAN CAMP.



1. Detachment of Allied Infantry called Extraordinarii.
2. Detachment of Allied Cavalry called Extraordinarii.
3. Select Infantry.
4. Select Cavalry.
5. Veteran Infantry.
6. Veteran Cavalry.
7. Tent of the Lieutenant-Generals.
8. Tent of the Prætorium or General's Tent.
9. Questorium or Treasury.
10. Præfects of the Allies.
11. Tribunes of the Legions.
12. Allied.
13. Legionary.
14. Roman Legionary.
15. Cavalry—Triarii.
16. Principes—Hastati.
17. Cavalry—Infantry.
18. Cavalry—Infantry.
19. Principes—Hastati.
20. Cavalry—Triarii.
21. Roman Legionary.
22. Legionary.
23. Allied.

short period, and those which they proposed to occupy for a longer time, which were called *castra stativa*. The difference between these consisted chiefly in the strength of the fortifications, and in the superior size of the temporary camps, which were intended commonly for the whole army, while the more permanent encampments were for the divisions of the army. Winter encampments were not used by the Romans in the earlier periods of their history, when their chief wars were little more than summer campaigns, and were waged against neighbouring nations: but in a later age, when permanent conquest was their aim, and the war continued several years, the army was regularly distributed into winter-quarters, and often spread over a considerable extent of country, in order to overawe the subjugated districts, or because forage and provisions could be obtained by the army in several divisions more easily than when it was in one body. Cæsar in his Gallic campaigns regularly distributed his army into winter-stations so strongly fortified that, though several attempts were made upon them, only one was taken, and that because the commander unwisely abandoned it.

Polybius in the sixth book of his History gives a most complete description of the Roman camp of a Consular army, but which, as it does not

widely differ from those under Julius Cæsar, need not be here repeated.

Of the form of the GRECIAN CAMP nothing exact or constant can be delivered, that being not always the same, but varied as the custom or humour of different states, or the conveniences of place and time, required. The Lacedemonians, indeed, are said to have been prescribed a constant method of building towns and encampments by their lawgiver, who thought a spherical figure the best fitted for defence,* which was contrary to the custom of the Romans, whose camps were quadrangular; but all forms of that sort were rejected by Lycurgus, the angles being neither fit for service nor defensible, unless guarded by a river, mountain, wall, or some such fortification.

It may be observed that the veterans of the soldiers were placed at the extremities, the rest in the middle, that the stronger might be a guard to the weaker, and sustain the first onsets, if the enemy should endeavour to force their intrenchments.

When they designed to continue long in their encampments, they contrived a place where altars were erected to their gods, and divine service solemnly performed.

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* Xenophon, De Republicâ.

When they were in danger of having their camp attacked, it was usual to fortify it with a trench and rampart, or wall, on the sides whereof they erected turrets, not unlike those upon the walls of cities.

There were guards appointed for day and night. During the night certain officers walked round the camp to visit the watch, to ascertain whether any were asleep. They had a little bell, at the sound whereof the guards were to answer.

The Spartans kept a double watch; one within the camp, to observe their allies, and the other on some eminence or place where there was a good prospect, to watch the movements of their enemies.

How often the guards were relieved does not appear, but it is supposed, from certain expressions, they were changed four times every night —that is, every third hour, computing the night from six to six, or rather from sun to sun.*

In the East, in all the different forms of encampment—the nomade, the travelling, the military—a general preference is given to a circular arrangement. The circumstances of the ground sometimes compel a departure from it; and the additional exigencies connected with pasturage and water render this more frequent among the Bedouins than in other cases. With them, when

* Potter's 'Antiquities of Greece.'

the circular form can be adopted, the place of honour, occupied by the emir, sheikh, or chief, is in the centre; the other tents being pitched at a respectful distance around. Under the ordinary circumstances of a camp, however, the chief often, among some tribes, foregoes this distinction for the sake of the character for hospitality, which requires him to have his tent, in every form of encampment, the nearest to that direction from which strangers usually arrive. The Eastern military and regal camps, when the ground allows, are also disposed circularly; and, if the army be large, in a number of concentric circles, the royal pavilion being in the centre. Mr. Morier, in describing the encampment of the Persian army in the plain of Oujan, which is noticed in the account of Persian tents, says, "The king thus became, as it were, the nave of a great wheel; and he was so completely hemmed in by his troops, that if an enemy had appeared, it would have been impossible to get at him without first cutting a road through the labyrinth of ropes and tents which everywhere surrounded him."

Approaching more modern times, it is worthy of notice that when, upon Marshal de Turenne's death, the French king appointed the Prince of Condé to the command, he by intrenched camps

contrived to weather the storm that had become so threatening.

The great extent of space which is unavoidably occupied by an army in the field renders it, in most cases, impossible to fortify the side of an encampment by a continuous line of parapet like that which the Roman armies surrounded themselves with when taking up a defensive position; and the security of a modern army against surprises is now obtained principally by the situation being difficult of access, from streams, marshes, or inequalities of the ground, and by keeping numerous advanced posts to watch all the approaches by which an enemy might arrive at the camp.

There are, however, some circumstances which render it indispensable that an encampment should be strengthened by fortifications — as when the troops are inexperienced, or the army is deficient in cavalry; but chiefly when a position is occupied which it is of the utmost importance to hold, because the possession of it would be advantageous to the enemy. The latter may then be reduced to the alternative of attacking the encampment at a disadvantage, or of suffering a loss of valuable time, in making the movements necessary to turn it. In these cases every resource of the engineers in the

construction of works, and in obstructing the approaches, should be put in practice for the purpose of augmenting the resistance which the army may be capable of making. A continuous line of works may, therefore, be advisable for an army inferior to that of the enemy, provided the extent of the line be not so great as to prevent the entrenchments from being sufficiently manned in every part; but a camp so fortified would possess no advantages for an army which is strong enough to assume the offensive on a favourable occasion presenting itself; and it is evident that, in this case, it would be sufficient to construct merely a few redoubts in situations from whence a fire of artillery might be directed for the purpose of defending the approaches, while the disposable force of the army might be kept in masses, ready at a proper time to make a movement to the front, through the intervals between the works.

Marshal Daun, the Austrian general, in the Seven Years' War, with an army always superior in number to the Prussians, intrenched himself with the utmost anxiety; and in 1759, when he took up a position near Dresden, though the King of Prussia (Frederick the Great) had lost the battle of Kunersdorf, and the Austrian army was encamped upon steep rocks, covered by a stream difficult to pass, yet the Marshal

surrounded himself with works so numerous that even the smallest paths were protected by them, and so strong that twenty years afterwards they were in existence. But one of the most celebrated of these intrenched camps was that which, in 1761, Frederick the Great took up at Buntzelwitz, in order to cover his Silesian capital, Breslau. This camp was formed within a chain of hills, protected on three sides by streams: six salient points on the contour were fortified by bastions, the fires from which would have flanked the intermediate parts of the line; and these were further protected by *fléches*, constituting a sort of broken curtain between every two redoubts. Nearly 180 pieces of artillery were planted to defend the avenues, and the camp was surrounded by abattis and other obstacles by which the approach of an enemy might be impeded. (Jomini.)

Such intrenchments, however, avail nothing when the army is not commanded by a man of great military genius. For instance, the French camp at Malplaquet, in 1709, is stated to have been fortified with a triple line, consisting of breastworks, hedges, and felled trees; it was forced, however, though with great loss, by the allies under the Duke of Marlborough.

It is remarkable that during the Peninsula war, which in general was distinguished by in-

attention to the means of strengthening the positions occupied by the troops, one of the finest examples of an intrenched camp was afforded in that which the British army under Wellington occupied before Lisbon in 1810, and by means of which he baffled the attack of the French army under Massena, and gave to the small town of Torres Vedras an historical name. This consisted of a double line of detached redoubts constructed on all the commanding points of ground, for the purpose of defending the four great roads and the accessible passes by which the enemy could approach the city. The first line began at the mouth of the Zizandra, on the Atlantic: it crowned the heights above Torres Vedras, and following the chain of Monte Graça, extended to the Tagus at Alhandra, its whole length being about twenty-nine miles. The second was about six miles in rear of the first; it began at the mouth of the San Lorenzo, on the ocean, passed over the heights of Mafra, Montechique, and Bucellas, and reached the Tagus at Quintella, its whole extent in length being about twenty-four miles. The weakest part seems to have been in the Valley of Calhandria, near the Tagus, on the exterior line; but this part was afterwards strengthened by a double row of abattis (trees cut down and laid with their branches towards the enemy),

besides breastworks of earth and thick stone walls. When the lines were completed, they consisted of 152 redoubts, armed, in all, with 534 pieces of ordnance, and required above 34,000 men for their garrisons.

ENCAMPING IN THE BRITISH ARMY.

THE camps of the Ancient Britons, and those of the Anglo-Saxons and the Danes in this country, seem to have been entrenched by breastworks made of felled trees, or of earth and stones rudely heaped together. Concerning the disposition of the troops within the enclosure, we only know that the Saxons drew up their cavalry in one dense body surrounding the standard, and that they placed the foot-soldiers with their heavy battle-axes in front. In a description of a camp formed by Edward II. during his expedition to Scotland in 1301, is contained the first hint we have of any regularity in the distribution of an English army while in the field; this amounts, however, to little more than that the ground was marked out, and that to every one a proportion of the space was assigned. Within the spaces tents of white or coloured linen were set up,

and huts were constructed; the latter probably for the private soldiers.

In early times both the French and English commanders of armies appear to have fortified their encampments when they undertook the siege of any place, particularly if it appeared to be likely of long duration; and Le Père Daniel (Hist. de la Milice Française, A.D. 1713) states, that when cannon was used, it was placed for protection of the army in large redoubts of wood or earth, called *Bastilles*, constructed at intervals along the circumvallation; he also relates that the English, while they made war in France, went in parties into the country, carrying with them strong palisades to form an intrenchment, behind which they were protected while using their cross-bows.

In the modern system of war, from the necessity of avoiding as much as possible the destructive effects of the enemy's artillery, and the desire of affording all possible development to the fire of their own infantry, commanders of armies have been compelled to abandon the square form of the ancient encampments, and to adopt that of long and narrow lines. But, with this arrangement it seldom happens that the ground will permit a perfect regularity in the dispositions of the several battalions and squadrons; and the occurrence of streams and other

accidents of the country may break the continuity of the line, or may render it necessary to give it a bent or waving direction. When, however, an army is encamped under tents, it may be regarded as a general rule that the line should correspond to that in which the troops are to be drawn up to engage the enemy; also that the tents of each battalion should not occupy a greater space in front than the battalion itself would cover when in order of battle—a practice which is said to have originated with Gustavus Adolphus.

The length of the front of a battalion of 750 men, two deep, allowing 21 inches to each file, will be 219 yards; and this would be the extent of the line of tents, were it not that the line is regulated by the probable number of effectives, instead of the numerical strength of the establishment. The depth of the encampment for a battalion is of less importance; but, when the ground will permit, it may be regulated by the following disposition, which is considered as affording sufficient convenience:—

The tents of the privates may be ranged in two lines parallel to the front, with an interval of about 12 feet, as a street, between every two companies in each line, and those of the captains and subalterns may be in one line in the rear of these; the field-officers and the commanding-

officer may occupy a fourth line; the staff a fifth; and the line of the kitchens may be in the rear of all. By this arrangement the depth, including a space for the suttler's tent, the bâtmen, and the horses, will be about 90 yards; but an interval of 16 yards should separate the front of the men's tent from the line of parade, which is parallel to that front. Opposite the centre of the battalion, and about 60 yards in front of the line of parade, are the tents of the party which forms what is called the quarter-guard; and at about 15 yards in rear of the kitchens the party forming the rear-guard is situated. Including all these intervals, the depth of the encampment for infantry will be 183 yards.

The length of front for a complete regiment of cavalry, consisting of eight troops, when formed two deep, is about 320 yards; and this may be considered as the extent occupied by the regiment in the line of the encampment. The seven tents of each troop are ranged in a line perpendicular to the front, and the horses are attached to pickets in lines parallel to those of the tents; the remainder of the space reckoned parallel to the front being occupied by the breadths of the streets. In the rear of the men's tents and parallel to the front are arranged the subalterns' horses in one line; the tents of the captains and subalterns in another; those of the

field-officers and commanding-officer in a third; and the kitchens in the rear of all. The standards are placed parallel to the front, at 10 yards before the tents of the privates; and the distance from thence to the line of parade is 30 yards; with these dispositions the whole depth of a regiment of cavalry will be 216 yards.

A large army is encamped in two lines, which, if the ground will permit it, are parallel to, and at the distance of about 300 yards from each other; and a reserve, generally consisting of the best troops, is formed in rear of the second. The stations of the cavalry are on the flanks of each line. The artillery attached to an army is formed into brigades, and is posted either on the flanks of the camp or with the reserve in the rear; the extent of front for a heavy brigade is 60 yards, and the depth, including the line of guns, of limbers, and three lines of waggons, is 82 yards.

From a document which is supposed to be of the time of Elizabeth it appears that an English camp was divided into six portions, of which three were assigned to the cavalry and three to the foot-soldiers; and that between each division was a street 80 feet wide. There was also a space allotted for the market, and within this was the park of artillery, surrounded by carriages. It was regulated that no man should pitch

his tent within 140 feet of the ring, or periphery of the camp. The soldiers' huts or tents were placed twenty-five deep; each was 8 feet square, and contained two men; the depth of the encampment, including the depôts, the officers' tents, and the cross street, was 300 feet; and, including the streets, the whole extent in front of a regiment, consisting of thirteen companies, each of 150 men, was 712 feet. Originally, it seems, the officers' tents were placed in front of those occupied by the men; but Sir James Turner states that Henry of Nassau changed that custom, and caused them to be placed in the rear, as they are at present, or, at least, the captain, for two reasons: first, that the soldiers might be enabled to have more easy access to the parade or place of arms, unincumbered by the huts of their officers, or the cords of their tents; and next, that the officers, being lodged in the rear near the sutlers, might prevent all brawls and disorders occasioned by drunkenness, which commonly originates there.

In the 'Abridgment of the English Military Discipline,' published by authority A.D. 1686, there are the following regulations respecting encamping:—

"The major-general for the day, having with him such of the guards of horse as shall be thought fit, and ordered by the general for the

security of the camp, is to march before the army, that he may view the ground, and to settle the camp, not far from water, if it may be with convenience; which being done, he is to order the quartermaster-general to set out the ground to the majors of brigades, who thereupon set it out to the adjutants of each regiment, who divide it for each troop or company; the major-general in the mean time is to ride about the camp, to post the main guard as he finds best for the safety of the army, and is to order the quartermaster-general what ground or village he is to take up for the king's quarters, as also some commodious place for the park of artillery, and another for the bread-carts, which is commonly near the centre of the army, with the hospital. When everything has been done as before mentioned, and the camp all marked out, then the major-general is to send an aide-de-camp to give notice to the general that all is ready; and at the entering into the camp the major-general is to meet the general, to give him a full account of every particular, the adjutants-general of horse and foot attending always on the general, that they may be ready to execute his orders, and make detachments without delay.

"It is the usual practice to encamp the army in two lines, the second distinct from the first

300 paces, that is, from the head of the first line to the head of the second, whereof 120 are for the encamping of the first line, so that there remain 180 paces for the distance between the last tent of the first line and the head of the second; and if the army encamp with a reserve, then the same distance is to be observed by them.

"The horse are to be posted on the wings, and the foot in the middle, in such a manner that the lines of the camp look towards the enemy, and be covered behind by a brook or marsh, if it may be with convenience.

"Every squadron, consisting of three troops, and fifty men in each troop, must be allowed 50 paces; and every battalion, consisting of sixteen companies, and fifty men in each company, must have 100 paces allowed for their encamping.

"All troops, or companies of horse or foot, consisting of but fifty men, are to be encamped in one row of baraques or hutts; but when troops or companies consist of more men, there must be two files of baraques or hutts.

"It is to be observed that, in each squadron or battalion, the colonel's company be always on the right or left, and there make their row of hutts; behind them must be left the space for the street; then the second company make their row of hutts, near to which the third make theirs,

leaving the space of 2 feet only between their hutts, which is called the by-street; and the same thing is to be observed by the horse.

"The hutts of the foot always open towards the street, the baraques of the cavalry always towards the horses' heads.

"The hutts of the quartermaster and serjeants are always to be at the head of the troopers' and soldiers', and the officers' tents behind.

"The camp of the first brigade of the army is on the right hand of the first line, that of the second on the left; the third is posted right on the second line, the fourth on the left; and the rest in the centre, according to their seniority. This is to be observed among the horse as well as foot.

"The dragoons are never to be encamped in the body of the army, but have their camp at the head, or on the wings on that side where the greatest danger is, serving always as an out-guard for the army.

"Every regiment is to have a guard at the head of their camp, and the major-general for the day takes care to place the great guard in a proper place and distance from the army towards the enemy, choosing for that effect a place where all the avenues may be discovered; there it is to continue during the day, and at night is to draw off near the army, at the head of the foot.

"The colonel or officer of the horse who mounts the guard is to send off an out-guard, or advance-guard, consisting of twenty-four troopers, commanded by a lieutenant, whom he posts where he sees most convenient, in a place from whence the country about may be easily discovered.

"The duty of him who commands the guard is to let no person whatsoever pass without an order, to look everywhere about, and to send notice to the general whenever he discovers any troop or forces.

"It is to be observed that the measure of the ground before mentioned is meant only for the encampment of an army, for if it were to be ranged in battle in case of service, the distances between the battalions and squadrons are to be greater than in a camp; it must be endeavoured as much as may be that the second line may be equal to the first, keeping the same distance upon the right and left."

Then follow the rules and proportions for encampment of an army.

The following orders relative to encampments were issued, in 1799, from the Adjutant-general's office, by command of his Royal Highness the Duke of York, Commander-in-Chief of the army.

"On the arrival of a brigade, or a battalion, on

the ground, destined for its camp, the quarter and rear guards of the respective regiments will immediately mount, and when circumstances require them, the advance pickets will be posted. The grand guards of the cavalry will be formed, and the horses picketed. The men's tents will then be pitched; and till this duty is completed, the officers are on no account to quit their troops, or companies, or to employ any soldier for their own accommodation.

"Whenever a regiment remains any more than one night in a camp, regular kitchens are to be constructed.

"No tents or huts are to be allowed in front of or between the intervals of the battalions. A spot of ground for this purpose shall be marked by the quartermaster, with the approbation of the commanding officer.

"On arriving in a camp which is intersected by hedges, ditches, unequal or boggy ground, regiments will immediately make openings of communication, of 60 feet in width.

"The ground in front of the encampment is to be cleared, and every obstacle to the movements of the artillery and troops is to be removed.

"Commanding officers of regiments must take care that their communication with the nearest grand route is open, and free from any impediments."

From the '*Aide-Mémoire to the Military Sciences*,' compiled from contributions of officers of the different services in the British army, and edited by a Committee of the corps of Royal Engineers, 1845-6; and which is the best English work extant on the modern science and art of war, the following passage and accompanying table is extracted :—

"CASTRAMETATION is the art of laying out camps, whether the troops intended to occupy them are to be hutted, under canvas, or bivouacked.

"There are 'camps of position' and 'incidental camps.'

"Troops are seldom hutted, except when occupying the former, and invariably either bivouac or encamp under canvas tents, when occupying the latter."

With reference to tents, it says, "During the latter part of the Peninsular War, the general issue of tents to the Portuguese troops was discontinued; instead of these, their blankets were edged with cord, looped at the corners; and with a squad of four men, these blankets could be thus secured to their muskets crossed, so as to form a small 'ridge tent.'"

TABLE of Marquees and Tents for the

Description of Tent or Marquee.	Number of Men for.	Extreme space inside Pins.		Weight. Dry.	Weight. Wet.
		Feet.		lbs.	lbs.
Common Circular (or Bell) Tent.	12 Cavalry or 15 Infantry.	17 diam.	Tent. .	56½	92
			Poles. .	9½	11
			Total. .	65½	103
Marquee, large. Field-officer or Captain: with ticken lining.	1	35 × 28	Tent. .	140	210
			Poles. .	33	34
			Total .	173	244
Marquee, small. Subaltern: with ticken lining.	2	31 × 24	Tent. .	117	186
			Poles. .	33	34
			Total, .	150	220
Laboratory Tent. Large, circular.	,,	42 diam.	Tent. .	169	290
			Poles. .	83	85
			Total. .	252	375
Laboratory Tent. Small, circular.	,,	39 diam.	Tent. .	123	187
			Poles. .	33½	34½
			Total .	156	221½
Ridge Tent	2	8 × 8	Tent. .	20	30
			Poles. .	8	8¼
			Total. .	28	38¼
Hospital Marquee	,,	47 × 34	Tent. .	346	560
			Poles. .	82	84
			Total .	428	644

Two mallets allowed for every description of Marquee or Tent.

General Service of the Army. (1846.)

Number of Pins.		Packed in	Tonnage.	Remarks.
Small.	Large.			
42	..	V.	Cub. ft. 5	It is probable that this weight may be somewhat reduced by-and-bye; the additional weight arises from an improvement in the canvas. Four of these Tents are allowed for each regiment as Guard Tents.
96	4	V.	12	Not allowed to Cavalry and Infantry of the Line; but they are issued for Artillery purposes occasionally.
76	4	V.	11	Ditto ditto.
96	4	V.	13	For Artillery purposes only.
78	4	V.	7½	Ditto, formerly called a Mess-Tent.
14	..	B.	1½	
180	4	V.	26	1 per regiment allowed.

V. signifies packed in a canvas valise; B. in a bag.

REGULATIONS FOR ENCAMPMENTS IN THE BRITISH ARMY.

OF INFANTRY — OF CAVALRY — OF ARTILLERY.

REGULATIONS FOR ENCAMPMENTS IN THE BRITISH ARMY.

THE regulations for encampments in the British army, issued from the Quartermaster-general's office, Horse-Guards, 11th May, 1853, state :—

1. It having been found necessary to revise the existing regulations for the encampment of Her Majesty's troops, the General Commanding-in-Chief has been pleased to command that the following instructions be prepared, and promulgated for the information and guidance of the army.

2. Although troops must be guided in the position and form of their encampments by the shape and nature of the ground, the proximity of wood and water, and in actual warfare by a variety of considerations which defy all rules, it is nevertheless desirable that certain definite forms of encampment should be established by authority, to be departed from in all cases whenever circumstances shall make it desirable to do so for the convenience and efficiency of the troops.

3. The following are the principles which have mainly led to the establishment of the forms of encampment which are laid down in these instructions, and which should, as far as possible, govern the disposition of all camps, of whatever form, viz. :—

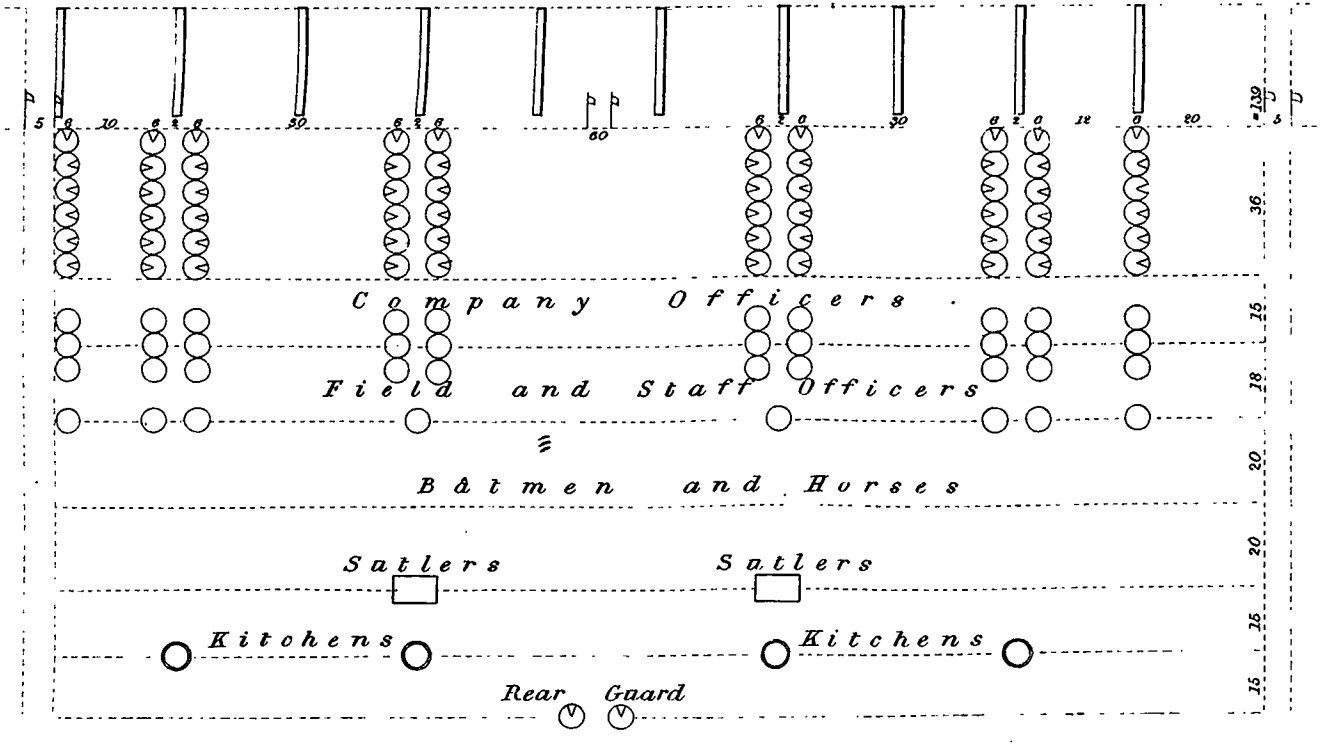
1. That the front of the camp be made to correspond in extent with the front occupied by the troops in line :
2. That the means of passing freely through the encampment with a large front be maintained :
3. That the tents be disposed with a view to the greatest amount of order, cleanliness, ventilation, and salubrity :
4. That the camp be as compactly arranged as the above considerations permit.

OF INFANTRY.

4. The ordinary mode of encamping a battalion of infantry has been in open column on the reverse flank, but with the alternate companies closed, and encamped back to back, and with a wide street in the centre, as shown in Plan 1.

N°. 1. *ENCAMPMENT of a BATTALION, (complete) of 850 Rank and File.*

Eighty yards in advance, are placed, in the Centre, 3 Tents of the Quarter Guard.



5. The space occupied by a file is 21 inches; thus, supposing a battalion of 850 rank and file could be brought under arms complete :—

	Files.
Its front would be	425
To which add, for officers and colours ..	14*
Total	439

But from this total (or, indeed, from the total of rank and file actually in the field), the following deductions must be made, viz. :—

	Rank and File.
Band*	20
Pioneers	11
† Sick and hospital orderlies	55
‡ Mounted officers' bâtmen	4
Total	90 or 45 files.

This would reduce the front of a complete battalion of 850 rank and file to 394 files.

394 files at 21 inches = 229 yards 10 inches (say 230 yards).

Captains	10
Subaltern on the left of the line ..	1
Colours	2
Centre serjeant	1
Total	14

† Calculating five sick men per company, and one orderly to every ten sick men.

‡ Lieut.-colonel; two majors; adjutant.

In computing the frontage of a brigade or division, the intervals between battalions and brigades in line, viz., five yards or six paces, will be maintained between the encampments of the contiguous battalions and brigades.

6. The circular tents now used occupy a front of nearly 18 feet, and fifteen men are allotted to each tent.

7. A battalion encamped, as shown in Plan No. 1 (occupying a front equal to its own in line), will, under ordinary circumstances, cover ground to the rear extending perpendicularly to a distance of about 139 yards from the front line of tents, and a space for the parade in the front towards the quarter guard of not much less than 80 yards in extent; being a total of about 220 yards from quarter guard to rear guard.

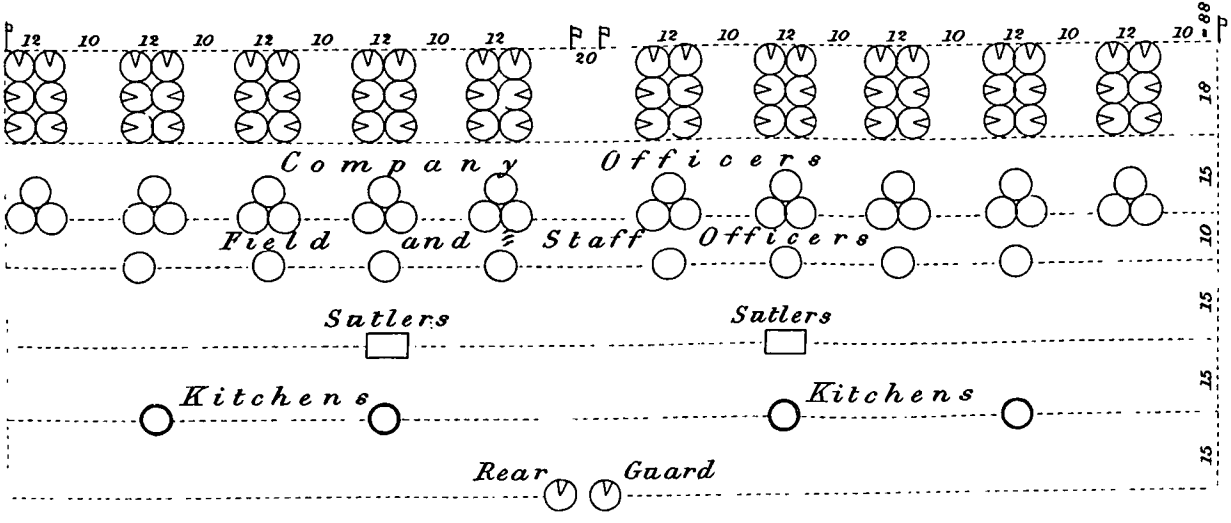
The leading company's tents being placed on the prolongation of its front as it stood in column after wheeling back from line, an interval is thus left between contiguous battalions, of the front of a company and six paces; whereby the free passage of troops is provided for through the lines on a large front, without traversing the actual encampments of battalions.

8. But the mode of encampment shown in Plan 1 is not always practicable, as the ground

N°. 2. *ENCAMPMENT of a BATTALION, (complete) of 850 Rank and File.*

(Compressed.)

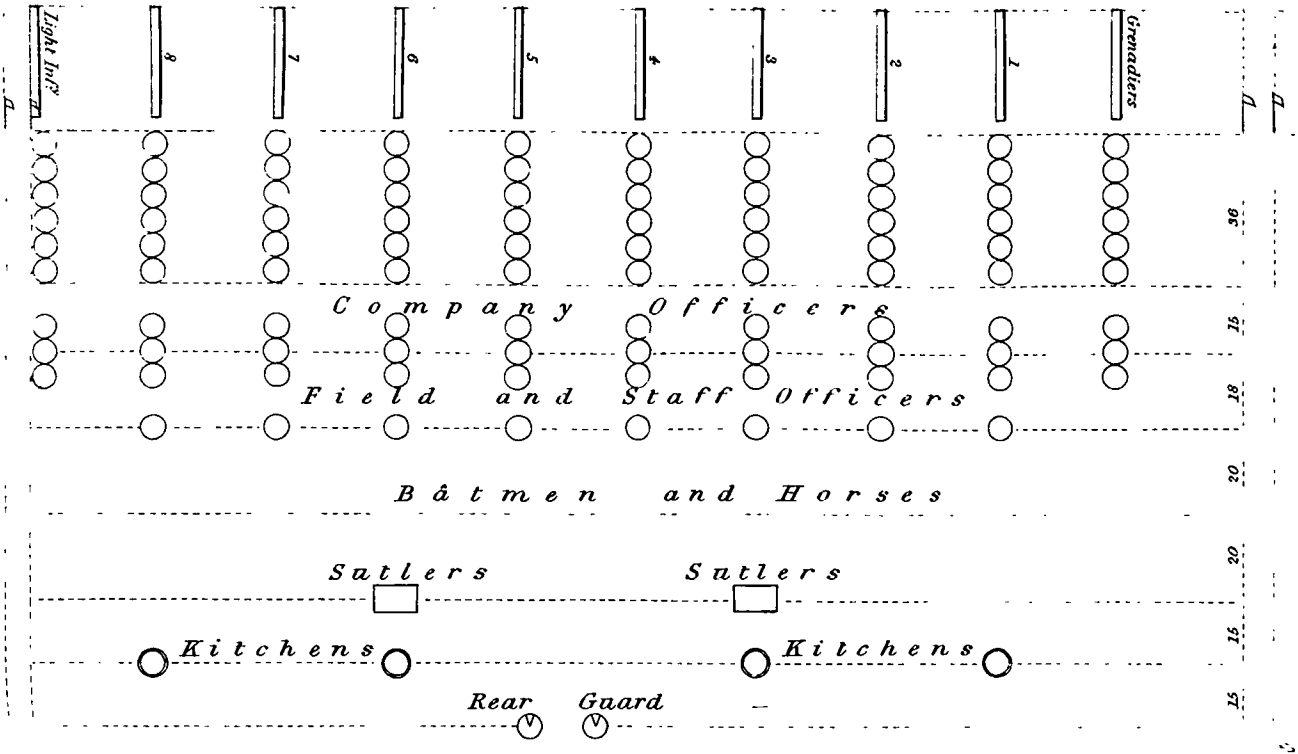
Eighty yards in advance, are placed, in the centre, 3 Tents of the Quarter Guard.



N°. 3.

ENCAMPMENT of a BATTALION, (complete) of 850 Rank and File, in single Streets.

Eighty yards in advance, are placed, in the Centre, 3 Tents of the Quarter Gaard.



may not in every case admit of the extent nor depth indicated; on such occasions the camp must be compressed. The diminution of the frontage may be simply effected by diminishing the distances between the companies, and proportionally likewise the intervals between battalions; and the depth of the encampment may be lessened, as shown in Plan 2.

The bâtmen and horses do not in all cases require a line, and in Plan 2 they are supposed to be picketed in any convenient spot affording shade or shelter.

9. Although the system of encampment in double streets with a wider street in the centre (which has been used for parades of non-commissioned officers, musicians, duties, &c.) has long prevailed, there is reason to believe that a simple encampment in open column, as shown in Plan 3, each company encamping on the prolongation of its own front, may be occasionally adopted with advantage.

In this case the duties may be formed, as is the case in barracks, on the general parade.

According to this arrangement the companies' tents can be turned in any direction, so as either to place the tent doors to leeward in driving rains and cold winds, or to windward in hot seasons; and an encampment on this plan

is more expeditiously formed than that arranged upon the double principle.

OF CAVALRY.

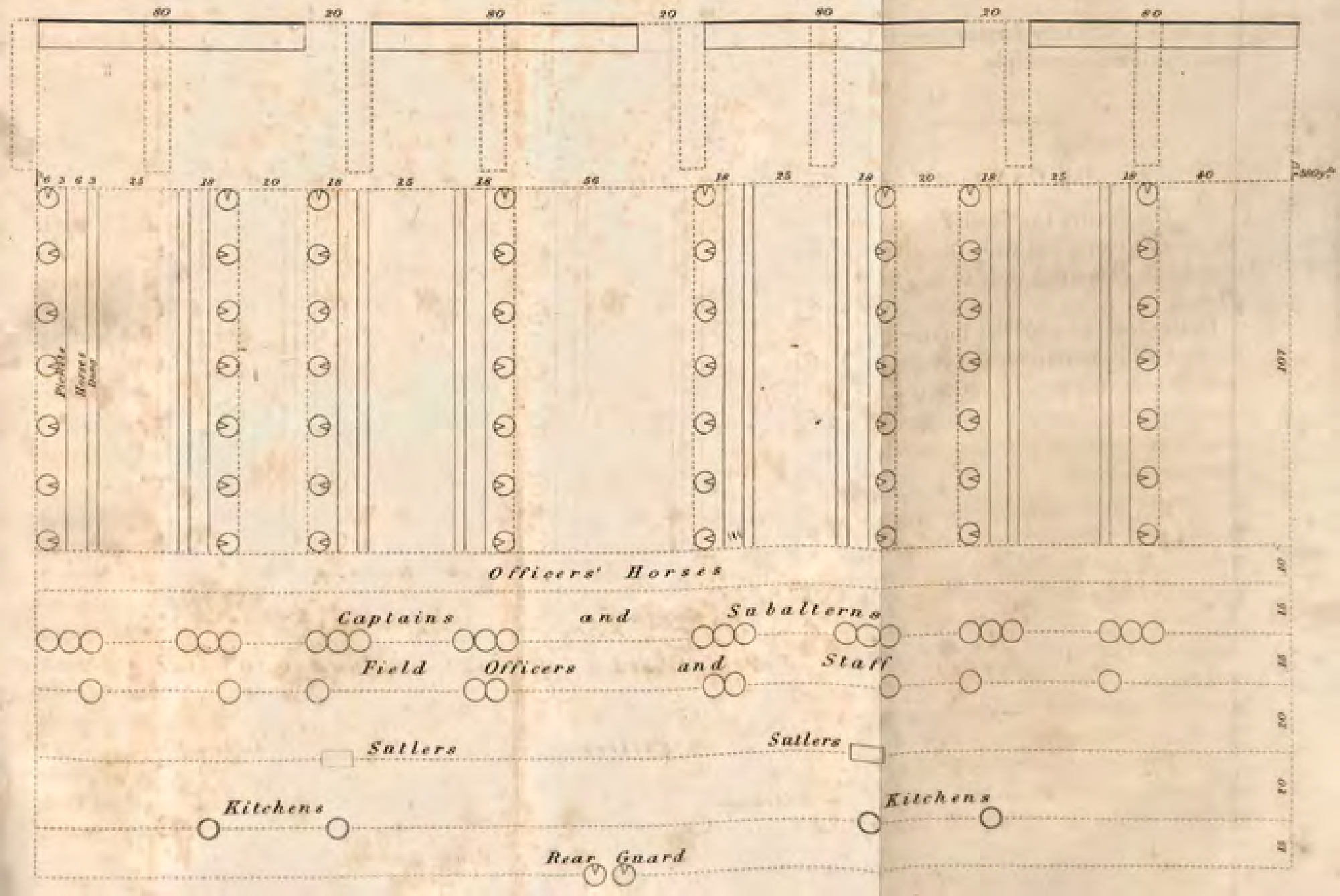
10. The cavalry has usually encamped in open column of troops, but with the alternate troops closed and encamped back to back, as shown in Plan 4.

In this case, as with the infantry, the leading troop should encamp on the prolongation of its own front in column, in order to leave a sufficient interval between contiguous regiments, and thus admit of the free passage of troops through the lines.

11. The front computed for a mounted troop horse in the ranks is 1 yard, and when picketed 4 feet, and the front and depth of encampments are computed accordingly, allowing quarter intervals in the front between squadrons, and a similar distance between contiguous regiments in brigade. Thus the actual interval between the encampments of contiguous regiments equals the front of a troop and a half.

12. The encampment of a cavalry regiment on the war establishment of four squadrons, each of 160 horses, is shown in Plan 4; twelve

№ 4. ENCAMPMENT of a REGIMENT OF CAVALRY of 4 Squadrons = 640 horses.



cavalry soldiers being the proportion established for each tent.

13. But with the present reduced establishment of regiments this mode of encampment could not conveniently be carried out; the front covered by a regiment occupying too small a space for encampment in column of troops.

The most convenient mode, therefore, of encamping a regiment of cavalry of the present establishment of 271 horses,* will probably prove to be in column of squadrons, as shown in Plan 5.

14. Cavalry encampments do not admit of so great an amount of compression as those of infantry, as the cavalry horse must have 4 feet or $3\frac{1}{2}$ feet at the least, allotted to him at the pickets; but with a strong regiment the front may be reduced by lessening the troop or squadron distances.

OF ARTILLERY.

15. As it is important that officers of the service generally should be acquainted with the principles observed in the encampment of troops of other arms than their own, and with the

* Two hundred and forty horses would be the maximum number actually in the field.

space which they occupy when encamped, the General Commanding-in-Chief has further commanded that the existing regulation* for the encampment of field artillery, as established in the Royal Artillery by command of the Master-General of the Ordnance, be annexed to these instructions for the general information of the army.

By command of the Right Honourable
The General Commanding-in-Chief,
J. FREETH, Quartermaster-General.

N.B. All the plans accompanying these instructions are framed upon the same scale of 40 yards to an inch.

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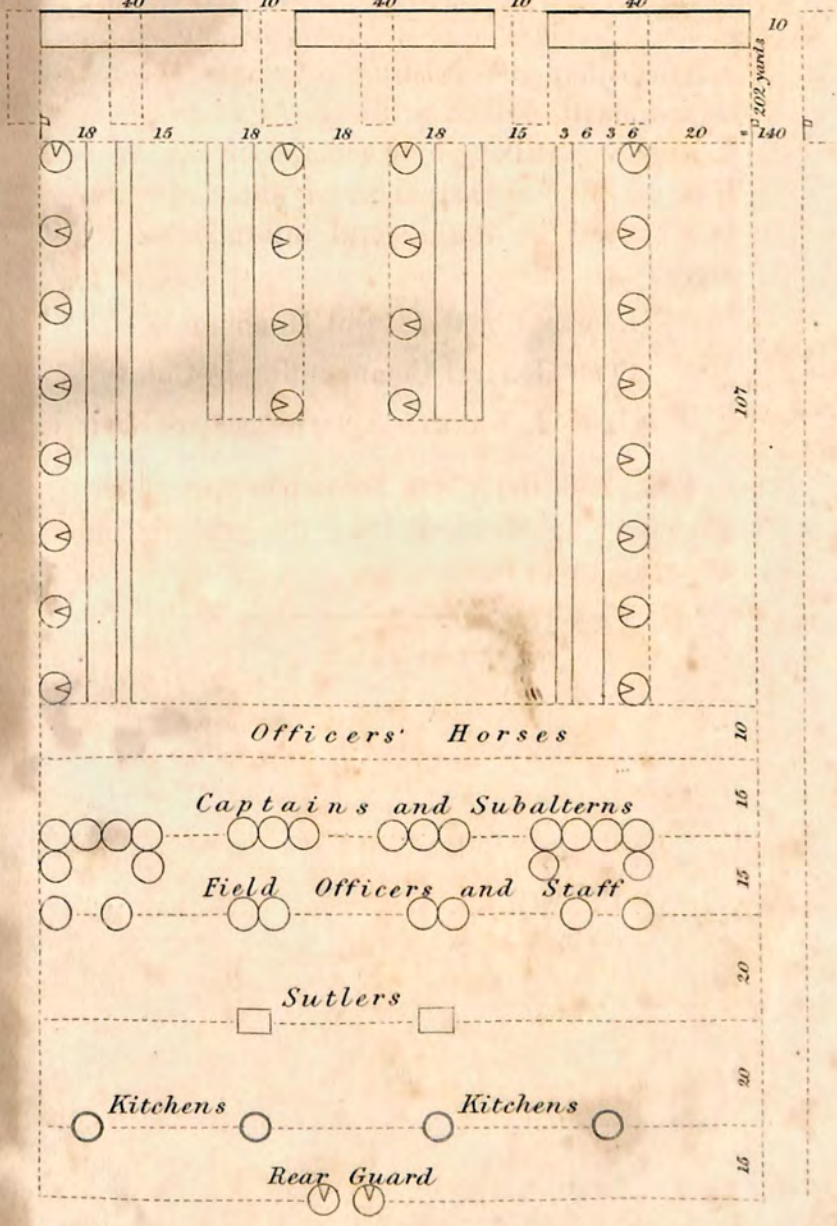
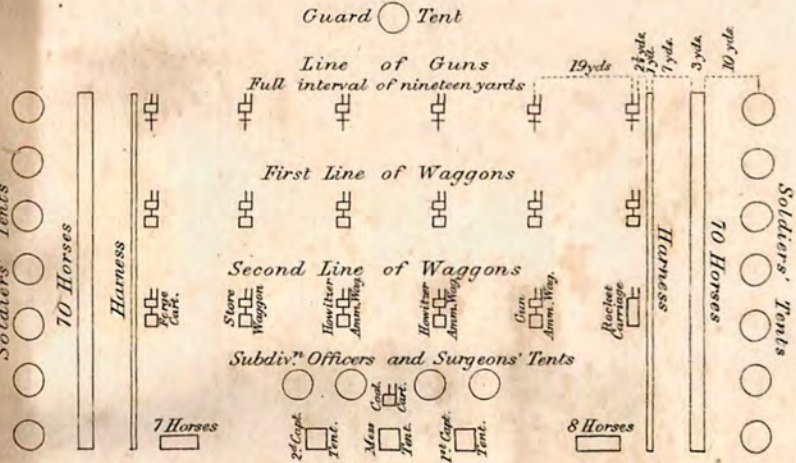
* See plans 6, 7, 8, 9.

N°. 5. *ENCAMPMENT of a REGIMENT OF CAVALRY.*

of 3 Squadrons (240 Horses)



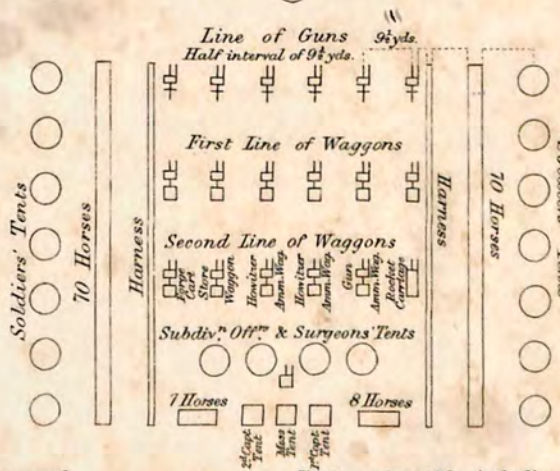
№6.

ENCAMPMENT of a TROOP of ROYAL HORSE ARTILLERY.

Ground covered
149 yds by 70yde

Total number of Men, including Officers, 162.
Total number of Horses, 155. Carriages, 19.

№7.

ENCAMPMENT of a TROOP of ROYAL HORSE ARTILLERY.



Ground covered
101½ yds by 70yds

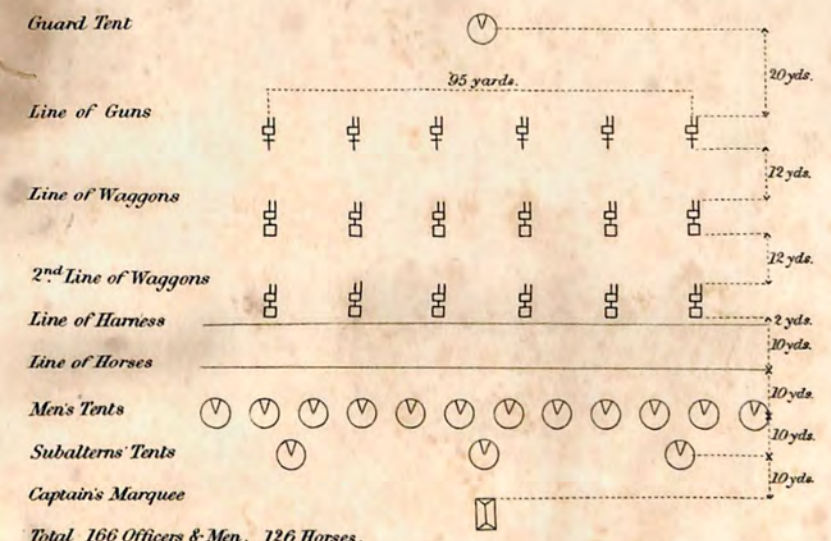
Total number of Men, including Officers, 162.
Total number of Horses 155. Carriages, 19.

№ 8.

ENCAMPMENT of a FIELD BATTERY, at full intervals.

Horses and Tents in rear.

(First Method.)

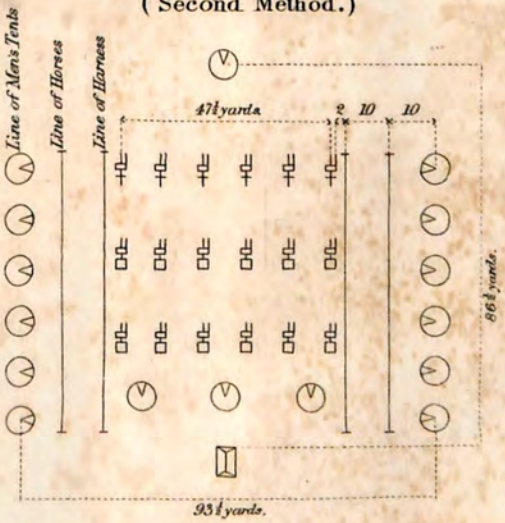


№ 9.

ENCAMPMENT of a FIELD BATTERY, at half intervals.

Horses and Tents on Flanks.

(Second Method.)



SELECTING ENCAMPING GROUNDS IN A SANITARY POINT OF VIEW.

THE remarks of the late Dr. Robert Jackson, Inspector-General of Army Hospitals, in 1845, on 'Selecting Encamping Grounds in a Sanitary point of view,' are so important, that no apology is needed for giving insertion to them at full length.

"The manner of covering troops while employed in the field, is a subject of not less important concern than that of disposing of them in quarters. A necessity occurs in war, on many occasions, which leaves no option of choice in occupying posts of an unhealthy character; but there is unfortunately an authority, derived from example and the sanction of great names, which directs the military officer, when under no military necessity, to fix his encampment on grounds which are unhealthy in themselves, or which are exposed by position to the influence of noxious causes which are carried from a distance. Such advice proceeds from desire to act on a presumption of knowledge which cannot be ascertained, rather than

to act by the experience of facts which man is qualified to observe and verify.

"It is consonant with the experience of military people in all ages and in all countries, that camp-diseases most abound near the muddy banks of large rivers, near swamps and ponds, and on grounds which have been recently stripped of their woods. The fact is precise; but it has been set aside to make way for an opinion. It was assumed, about half a century since, by a celebrated army physician, that camp-diseases originate from causes of putrefaction, and that putrefaction is connected radically with a stagnant condition of the air. As streams of air usually proceed along rivers with more certainty and force than in other places, and as there is evidently a more certain movement of air, that is, more wind on open grounds than among woods and thickets, this sole consideration, without any regard to experience, influenced opinion, gave currency to the destructive maxim, that the banks of rivers, open grounds, and exposed heights, are the most eligible situations for the encampment of troops. They are the best ventilated; they must, if the theory be true, be the most healthy.

"The fact is the reverse; but demonstrative as the fact may be, fashion has more influence than multiplied examples of fact experimentally

proved. Encampments are still formed in the vicinity of swamps, or on grounds which are newly cleared of their woods, in obedience to theory, and contrary to fact. The savage who acts by instinct, or who acts directly from the impressions of experience, has in this instance the advantage over the philosopher; who, reasoning concerning causes which he cannot know, and acting according to the result of his reasonings, errs, and leads others astray by the authority of his name. The savage seeks the cover of the forest, and avoids the streams of air which proceed from rivers, from the surface of ponds, or from lands newly opened to the sun. His rule is a rule of experience, founded in truth, and applicable to the encampment of troops even of civilized Europeans.

"It is prudent, as now said, in *selecting ground for encampment*, to avoid the immediate vicinity of swamps and rivers. The air is there noxious; but, as its influence thence originating does not extend beyond a certain limit, it is a matter of some importance to ascertain to what distance it does extend; because, if circumstances do not permit that the encampment be removed out of its reach, prudence directs that remedies be applied to weaken the force of its pernicious impressions. The remedies consist in the interposition of rising grounds, woods, or such other

impediments as serve to break the current in its progress from the noxious source. It is an obvious fact, that the noxious cause, or the exhalation in which it is enveloped, ascends as it traverses the adjacent plain, and that its impression is augmented by the adventitious force with which it strikes upon the subject of its action.

"It is thus that a position of three hundred paces from the margin of a swamp, on a level with the swamp itself, or but moderately elevated, is less unhealthy than one at six hundred on the same line of direction on an exposed height. The cause here strikes fully in its ascent; and as the atmosphere has a more varied temperature, and the succussions of the air are more irregular on the height than on the plain, the impression is more forcible, and the noxious effect more strongly marked. In accord with this principle, it is almost uniformly true, *cæteris paribus*, that diseases are more common, at least more violent, in broken, irregular, and hilly countries, where the temperature is liable to sudden changes, and where blasts descend with fury from the mountains, than in large and extensive inclined plains under the action of equal and gentle breezes only.

"From this fact, it becomes an object of

the first consideration, in selecting ground for encampment, to guard against the impression of strong winds on their own account, independently of their proceeding from swamps, rivers, and noxious soils.

"There is room for improvement in the manner ordinarily employed for covering troops from the inclemency of the weather during a campaign: perhaps the very base of the plan might be changed with advantage. In countries covered with woods, abundantly supplied with straw and other materials applicable to the purposes of forming shelter, it is upon the whole better to raise huts and construct bowers than to carry canvas. Great expense, and considerable inconvenience, on the head of transport, is saved in the first instance by adopting that measure, and what is of more importance, the service begets an interest to itself in all its stages. The individual is exercised by labour; and as his mind is employed in contriving and executing something for self-accommodation, he is furnished with a daily opportunity of renewing the pleasure. The mode of hutting here recommended effectually precludes the evils arising from those contaminations of air * in which contagion is generated;

* These evils arise from the want of a proper method of top ventilation, which the present form of conical tents, having centre

an evil which often arises in tents, and is carried about with an army in all its movements in the field."

Dr. Jackson proceeds to say—

"It is proved by experience, in armies as in civil life, that injury does not often result from simple wetting with rain, where the person is fairly exposed in the open air, and habitually inured to the contingencies of weather. Irregular troops which act in the advanced line of armies, and which have no other shelter from weather than a hedge or tree, rarely experience sickness, never, at least, the sickness which proceeds from contagion; hence it is inferred that the shelter of tents is not necessary for the preservation of health. Irregular troops, with contingent shelter only, are comparatively healthy, whilst sickness often rages with violence in the same scenæ, among those who have all the protection against the inclemencies of weather which can be furnished by canvas. The fact is verified in experience, and the cause of it is not of difficult explanation. When the earth is damp, the action of heat on its

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poles as supports, renders a difficult matter to overcome. The Author has supplied this want in his patented tents. All centre supports have been omitted, and through the centre of the "head' there is direct ventilation, similar to the opening at the top of a chimney, which can be closed or opened from the inside of the tent at pleasure.

surface occasions the interior moisture to ascend. The heat of the bodies of a given number of men, confined within a tent of a given dimension, raises the temperature within the tent beyond the temperature of the common air, outside the tent. The ascent of moisture is thus encouraged generally, by a change of temperature in the tent, and more particularly by the immediate or near contact of the heated bodies of the men with the surface of the earth. Moisture, as exhaled from the earth, is considered by observers of fact, to be a cause which acts injuriously on health. Produced artificially by the accumulation of individuals in close tents, it may reasonably be supposed to produce its usual effects on armies. A cause of contagious influence, of fatal effect, is thus generated by accumulating soldiers in close and crowded tents, under the pretext of defending them from the inclemencies of weather; and hence it is that the means which are provided for the preservation of health, are actually causes of destruction of life.

"But though tents, as means of protecting troops against the inclemencies of weather, are more injurious than useful to health, *according to their ordinary construction and manner of adjustment*, yet, as habits acquired by long custom grow into prejudices which are not easily over-

come, it would be time lost to attempt to prove the advantages that might be gained by discontinuing *such* protection. In the refined stage of manners and military habits in which we now are, artificial protections are deemed indispensable, and tents must perhaps on that account be always permitted to be an appendage of armies.

"There are two causes which more evidently act upon the health of troops in the field than any other, namely, moisture exhaled direct from the surface of the earth in undue quantity, and emanations of a peculiar character, arising from diseased action in the animal system, in a mass of men crowded together. These are principal, and they are important. The noxious effects may be obviated, or rather the noxious cause will not be generated, under the following arrangement; namely, a carpet of painted canvas for the floor of the tent; a tent with a light roof, as defence against perpendicular rain, or the rays of a vertical sun; and with side walls of moderate height, to be employed only against driving rains. To the first there can be no objection. It is useful, as preventing the exhalation of moisture from the surface of the earth; it is convenient, as always ready; and it is economical, as less expensive than straw. It requires to be fresh painted only once a year.

The other is practicable; viz., a tent with a light roof; but the application of it is connected with trouble."

The Author, in his patent tents, has in a great degree supplied the requirements mentioned; for the inside "ground-curtain" being buttoned to the inside of the tent, at about one foot off the ground, forms a right angle with the soil; so that, although the soldier lies on the earth, his head rests on his knapsack, and his shoulders repose on that portion of the "ground-curtain" which is on the earth. Thus the soldier has part of his body resting on strong canvas, and, what is perhaps more important, any direct moisture exhaled from the earth, caused by the heated atmosphere within the tent, must pass through the "ground-curtain" before the soldier can inhale any. The exhalations from the ground not covered by canvas are quickly carried off by the direct ventilation at the top of the tent. The angle formed by the "ground-curtain" prevents any outside current of air blowing direct on the bodies of the men.

"The contact of the pure air conduces to health; and as that cannot be doubted, a roof, to defend from perpendicular rain, is all that is necessary for a soldier's accommodation in the field. A roof, similar to that of a marquee, is

liable to be overturned by strong winds; a tent with close walls is liable to be contaminated."

In his own tents all the defects which Dr. Jackson mentions are corrected, and every desideratum, he hopes, supplied; secure shelter against heavy storms and rains is afforded to the soldier in the tented field with a perfectly ventilated dwelling.

In a report on the sanitary condition of the camp at Châlons by the Baron Larrey, one of the most distinguished members of the Academy of Medicine of Paris, and surgeon in ordinary to the Emperor, the author, who was specially appointed to attend His Majesty at the camp in August, 1857, gives a detailed account of the sanitary condition of the troops assembled there at that period, and lays down rules, founded upon experience and sound reasoning, for the formation of camps, their internal police, and every element requisite for maintaining the health of an army in the field. The first condition of success being uniformity of system, Baron Larrey recommends that on or before establishing a camp all the medical officers of the different regiments be convoked for the purpose of discussing the various details of the service, and the precautions to be taken in order

to remedy the inconveniences resulting from the situation of the camp, or its defects as regards soil, water, or exposure. The chief of the medical body should daily receive from each of its members a bulletin, setting forth the number of men in each corps, the number of sick treated under the tent, and of those sent off to hospitals; as also the various kinds of disorders under which they labour, and the observations or suggestions calculated to benefit the service.

CHOICE OF GROUND, ETC.

The camp, especially if permanent, should be selected so as to be accessible to the troops by easy marches; it should occupy a spacious plain, in a province exempt from both epidemical and endemical diseases; the soil should be dry, but not too hard, so that it may quickly imbibe the rain; because it then becomes fit for military operations a few hours after the most violent shower. This prompt absorption, moreover, preserves the troops from the baneful influence of dampness, without exposing them to the inconveniences of want of water, since in such a soil wells may be easily dug and water found at an inconsiderable depth, as is the case at Châlons. A good camp should not be intersected by streams or ditches, nor enclosed by large forests. The tents should not be too closely packed, in order to ensure

good ventilation throughout, diminish the probability of epidemics, and facilitate the concentration of an infection within a limited space. The camp at Châlons had a circumference of 42 kilometres, including a manœuvring ground of 10,000 hectares (25,000 acres); it was occupied in 1857 by 21,915 men and 5871 horses, exclusive of the Emperor's escort, the staffs, commissariat, and sanitary department. The front of the camp, between seven and eight kilometres in length, was turned to the east, opposite to the imperial quarters, which occupied a rising ground, whence the whole camp might be overlooked. When a river is too near a camp, and its banks are somewhat marshy, the breaking out of intermittent fevers should be prevented by deepening the bed of the river, cleansing it as much as possible of all putrefying vegetable and animal substances, raising the banks and giving them at the same time a greater inclination, making channels for carrying off the water, and establishing tents and barracks at a sufficient distance, and as much as possible on rising ground.

POLICE OF A CAMP.

When the supply of water to a camp is derived from a river, the latter ought to be divided into three sections; the first and upper one to be exclusively used for drink by the men, the second

to be reserved for the horses, and the third and lowermost for washing the linen of the troops. These demarcations should be strictly guarded by sentinels stationed at the proper places. To drive off dampness, bivouac-fires ought to be lighted in the evening; each tent, moreover, should be surrounded with a gutter communicating with a main ditch to carry off rain-water; the space occupied by certain corps should also be sanded over to facilitate the absorption of humidity by the soil. When the heat of the atmosphere is excessive, the manœuvres should take place in the cooler hours, in order not to expose the men to congestions of the brain, lungs, or heart. In pitching tents care should be taken to maintain between them a distance of at least two metres; those of the general officers should be situated in the healthiest quarter. Tents made of white stuff are prejudicial to the eyesight in summer, and should be therefore discarded. A tent being liable to infection like a room, it ought not to be hermetically closed, as is the custom with soldiers, but, on the contrary, well aired; and the ground ought not only to be scraped and swept, but should also be well rammed. The men ought not to sleep in the tents with their heads near the centre and their feet towards the circumference, but in the contrary position, else they breathe a vitiated instead of a pure air.

TENTS, SLEEPING, ETC.

A tent, generally calculated for 16 men, ought never to contain more than 12 or 13 infantry, and eight or 10 cavalry. Of the different kinds of tents the conical Turkish tent is the best; for ambulances the marquee is preferable. The *tente-abri*, which is made by joining two camp-sacks together by means of a wooden pole, and keeping them stretched by small stakes stuck into the ground, is pronounced by the author to be a most valuable invention. Four men can find shelter under it, and the weight it adds to their kit is trifling, but it can only be used in provisional encampments. The tents of the cavalry ought to be freed from the encumbrance of saddles and accoutrements, which vitiate the air, and should be placed under small sheds in front of the tents, or better still, in the stable barracks.

For barracks in permanent camps, Baron Larrey recommends M. Lagout's plan of lining their inner surface with marine algæ, as a preservative against dampness. The men should be encouraged to cultivate little patches of ground around their tents as gardens; it is both an amusement and a means of purifying the air; only they must not be allowed to manure the soil. As regards sleeping, each soldier should fill a camp-sack with straw and

lie down on it as on a mattress, with his blanket to cover him, or, better still, he should get into the sack filled with straw—a much better plan than allowing the men to sleep together in couples on two sacks spread out on the straw, and with the same blanket to cover them.

The ground on which the men sleep ought to be swept daily and sanded over, for it easily gets infected, in which case it become necessary to shift the tents—a measure which is often sufficient to stop an epidemic at its outbreak. A reserve of planks and trestles ought to be kept in store for extempore bedsteads when the ground has become too damp; or waterproof canvas may be spread over it to protect the straw from humidity. In autumn a single blanket is not sufficient; each man should be provided with two. Hammocks are very good for barracks, but not under canvas.

CLOTHING, FOOD, ETC.

The men should be better protected by clothing morning and evening than during the middle of the day. Linen trousers ought to be worn during the manœuvres, in order that, should these have got wet by rain, the men may exchange them on their return for the warmer pair of woollen stuff. Baron Larrey especially

remarks on the *danger of congestion caused by the tightness of the collar; the region of the neck ought to be kept as free as possible.* The chest is generally well protected, but the abdomen should be equally so by means of flannel waist belts. The soldier, and especially the cavalryman, should be very attentive to the cleanliness of his person, and the officers should enforce it. When bathing is not practicable, the men ought to wash themselves daily from head to foot, rub themselves dry with a piece of flannel, and use the latter in the evening for dry frictions, which will carry off the dust of the day and predispose the body for the night's rest. The soldier should rinse his mouth and use a toothbrush daily—a practice which will preserve him from affections of the stomach, and this duty should be performed under the eye of the officer each day at a given hour. Great attention should be paid to the good quality of the provisions for the camp; both the administration and the medical staff should exercise vigilance over this important department. Variety of diet is advantageous; the meat should be either beef or mutton. Preserved and compressed vegetables are good when fresh cannot be had, but preference ought always to be given to the latter, or to potatoes and dry pulse, such as beans, lentils, &c. Eggs and rice are also advisable, as

neutralizing the laxative effects of other aliments. Good wine should be substituted for spirits; the men should at least be prevented from drinking the latter unmixed with water. The wine and spirits sold by the canteen-men should be subjected to a strict supervision, and all private venders of eatables or drink should be excluded from the camp. During the vintage season the immoderate use of new wine ought to be prevented. Coffee should be taken pure, and not mixed with chicory, which has a laxative property.

MANAGEMENT OF HORSES.

In time of war, horses must, of course, often be exposed to the night air, in which case they should be covered with blankets. But in a permanent camp, however desirable it may be to inure them to the privations they must be exposed to in real warfare, it is not less necessary to maintain them in good condition. Hence they should, as a rule, be kept under sheds, and only now and then be exposed to pass the night in the open air. Picketing the horses between the tents is a very bad plan; the air is vitiated by their vicinity to such an extent that at Châlons, notwithstanding the cavalry were much fewer in number than the infantry, the former had quite as many

men on the sick list as the latter. The artillery had fewer than the cavalry, because their horses were picketed along the front line of the camp. Another inconvenience resulting from the practice of picketing the horses between the tents is, that they become unruly, fight with each other, disturb the men's rest, break loose, run over the camp, and are often very troublesome to catch again. The straw on which the men have slept must not be used to litter the horses, as this may cause an epidemic to break out among them; the straw aforesaid should be changed once a fortnight and burnt. The dung should be transported daily out of the camp, and as far as possible from the stream which furnishes water to the troops.

MANŒUVRES, FIELD HOSPITALS, ETC.

The manœuvres should not take place oftener than three times a-week, with the interval of a day between each. The excessive heat of noon ought to be avoided; after a violent shower an opportunity should be allowed the men to change their clothes. As regards the sanitary service, a man suddenly taken ill or wounded during a manœuvre should be immediately taken to the nearest solitary spot and released from his accoutrements, while the medical

officer, seeing at a glance the requirements of the case, applies the simplest remedy or bandage, and sends the patient to the nearest field hospital. In no instance, except in case of undeniable urgency, should he proceed to any bloody operation on the field. Both the infantry and cavalry corps are generally provided with bags containing the most necessary articles of surgery; but here Baron Larrey points out many important deficiencies, which are of too technical a nature to be mentioned here; we shall therefore merely state that among the worst inconveniences of these bags there is the danger of breaking the phials they contain, and that the surgical instruments with which they are provided are always unfit for amputation, their edges being rendered dull from continual shaking and exposure to dust, which penetrates into the bags, notwithstanding every precaution. These bags ought therefore to be replaced by solid boxes made in the shape of portmanteaus. A sufficient number of litters for transporting the sick and wounded ought always to be at disposal, and Baron Larrey, while on this subject, suggests the revival of a body of men which formerly existed in the French army under the name of *brancardiers*, or litter-men, whose sole business it was to pick up the wounded on the field of battle. A dozen of

such men per regiment, he thinks, would be found very useful; they might be taken from the ranks, receive from the medical officer some slight notions of the most urgent duties relating to wounds, be always at hand to assist him, and, their work done, return to the ranks. This kind of organization exists at present in the Prussian army. Among the different modes of transport imagined for conveying the sick or wounded from a hospital tent to the central field hospital, or thence to a permanent one, the author condemns the kind of omnibuses used at the camp of Châlons, and called "omnibus Arnoux," but praises the "ambulance volante," or flying ambulance carriage, and the "cacolets" used in Africa, being a kind of chairs slung on both sides of a beast of burden. There should be a field hospital for each division, under the management of a captain. A superior officer, appointed by the commandant of the division, should daily inspect the sick wards, or tents; the latter should have wooden floors, and be provided with double blankets for each bed. The number of men in each tent should not exceed eight or ten, and there should be two of these tents for each regiment. The sick should be divided into two categories—namely, 1, transitory indispositions; 2, durable disorders. The former may be at once treated in

the hospital tents; the patients included in the latter category should be sent to the nearest permanent hospitals. For glasses and cups, utensils made of indiarubber and gutta-percha may be used. Every tent should be lighted at night with a lantern, and the sick may be attended by convalescent soldiers, or those whose health is impaired. In permanent hospitals the men should be as little packed as possible, and there ought to be separate rooms for serious cases. The apothecary attached to the ambulance should be well versed in chemical analysis, and be able to give his opinion on the quality of the water used in the camp, and other practical questions. Baron Larrey recommends, as a general rule, not to give an epidemic its common name in the reports, but to call cholera, for example, a gastric affection, in order to prevent, as he expresses himself, an imaginary epidemic from being added to a real one.

The remainder of Baron Larrey's report exclusively relates to the kind of disorders most frequent in camps, such as typhus and intermittent fevers, &c., for which we must refer our readers to the work itself, where they will find much valuable information, which we have been obliged to pass over in silence.

Baron Larrey concludes by saying that the mortality in the camp was next to nothing, since

out of an effective strength of upwards of 22,000 men only four died in the two months from the arrival of the first body of the Guards to the departure of the last regiments. On the 1st of October the hospital at Châlons, out of 96 patients, had only two deaths. The ambulance of the camp, into which at the same date 74 patients had entered, only lost one, and that took place before the ambulance was regularly organized. One man was found dead under his tent from apoplexy, brought on by a prolonged state of intoxication. Such results are astonishing, and testify more strongly than any reasoning could do how exceptional were the sanitary conditions of the camp.

It is to be observed that Baron Larrey pronounces the Turkish conical tent to be the best, and so far corroborates the opinion expressed at page 162. He also describes the ordinary tent (tente de troupe), the tente conique, and the tente marquise, but does not consider them fitting habitations for troops, owing to their want of stability to resist storms; their not being impervious to rain; above all, their extreme insalubrity during the night when the entrances are closed — an evil caused by want of top-ventila-

tion to carry off the heated atmosphere. The Baron, in his official capacity, called the Emperor's attention to the matter last mentioned. His Majesty, always anxious for the welfare of his soldiers, assured himself of the fact, by a personal nocturnal visit, and immediately commanded that the number of soldiers per tent should be reduced to eleven or thirteen infantry, and eight or ten cavalry, in proportion to their respective dimensions.

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